

MEMORANDUM

Project No.: 030185-004-10

October 15, 2004

To: Des Moines Basin Committee

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Re: TECHNICAL MEMORANDUM 2
Overexcavation/Clean Cap Extent Technical Memorandum
Des Moines Creek Regional Retention/Detention Facility

This technical memorandum presents the approximate volume of soil to be excavated during Phase II construction of the Des Moines Creek Regional Retention/Detention Facility (RDF) in the Cell 1 and Cell 2 areas. Included in the volume estimate is the approximate volume of organic silt or peat potentially containing elevated arsenic concentrations that may require special handling and disposal. These estimates are provided for planning purposes for management and disposal/reuse of excavated soils.

Purpose

The purposes of this technical memorandum are as follows:

- 1) Evaluate the area wide extent of Cell 1 and Cell 2 area that are elevated above Model Toxics Control Act (MTCA) Soil Cleanup Levels that could require of overexcavation to remove elevated arsenic soil.
- 2) Develop volume estimates of arsenic impacted soil which would require special handling and disposal requirements.
- 3) Estimate the volume of clean materials available, from either Phase I or Phase II construction activities, for reuse of a clean soil cap.
- 4) Results from this analysis will provide information to initiate discussions with the Department of Ecology (Ecology) to determine appropriate overexcavation and clean cap boundaries and depths.

For the purposes of this estimate, arsenic concentrations greater than 20 milligrams/kilograms (mg/kg) (the MTCA Method A Soil Cleanup Level for unrestricted use) were considered elevated and used as the screening level. To reduce the potential for arsenic mobilization after construction, soils containing elevated arsenic below the design excavation depth may

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be overexcavated and replaced with either a clean fill cap or clean fill cap amended with an soil amendment (e.g., iron) to reduce direct contact and immobilize arsenic. The need for a soil amendment will be evaluated once data is obtained from samples that are currently being analyzed at Columbia Analytical Services for arsenic mobility parameters and leaching potential. For estimating conservative planning level costs, we have assumed that some soil treatment will be required, and a line item for an iron amendment has been factored into the costs presented with this memorandum. The practical depth of overexcavation is expected to be limited by the locally shallow water table and engineering constraints for dewatering and excavation shoring.

Four remedial scenarios are considered:

- **Scenario 1.** Excavation to the design depth. This scenario is used to document the baseline cost associated with management of soils that are encountered above the design excavation surface and to evaluate the incremental additional costs associated with different overexcavation depths presented as Scenario 2 through Scenario 4 below.
- **Scenario 2.** Overexcavation of peat/organic silt containing elevated arsenic to a depth one foot below design.
- **Scenario 3.** Overexcavation of peat/organic silt containing elevated arsenic to a depth two feet below design.
- **Scenario 4.** Overexcavation of peat/organic silt containing elevated arsenic to a depth three feet below design.

Volume Estimates and Site Material Balance

Overexcavation of impacted soil under Scenarios 2, 3, and 4 would require backfilling in select areas to design grade. We understand that existing permit conditions may not allow imported fill to be placed at the site due to wetland issues. Therefore, we have included a material balance for each scenario, using the estimated volume of stockpiled soil excavated during Phase I construction activities and the estimated volume of fill required during Phase II construction activities. Because Phase I stockpiled material has not been characterized for suitability as on-site fill, these estimates are considered preliminary and will be refined after the Phase I stockpile characterization is performed after the Phase I construction is completed. For the purposes of this memorandum, we assume that 8,000 cubic yards of clean soil will be available from Phase I stockpiles.

The estimated volumes of excavated material above and below the screening level are based on the present ground surface elevation within the proposed excavation footprint (King County, 2004) and the proposed horizontal and vertical extent of the excavation (King County, 2003a and 2003b), and were calculated by S.S. Papadopoulos & Associates by interpolating the Event 1 and Event 2 soil data on a 10-foot by 10-foot by 0.5-foot (vertical) grid spacing to determine approximate area exceeding 20 mg/kg of arsenic in soil. Calculated volumes were then increased by 10 percent to account for uncertainty in identifying the exact boundaries of soil exceeding the screening level during excavation activities. Volumes and areas of soil to be overexcavated under Scenarios 2, 3, and 4 were calculated using an 80-foot by 80-foot grid approximately centered on borehole grid

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locations. Attachment 1 provides a summary of the Event 1 and Event 2 soil data. Table 1 provides soil volume estimates.

Figure 1 graphically shows the spatial distribution of Event 1 and Event 2 soil sample locations, an indication of peat soil horizons, total arsenic concentrations, and an indication on the elevation of the excavation surface. The estimated thickness of soil containing elevated arsenic concentrations located above the base of the excavation for Scenario 1 is shown on Figure 2. The estimated distribution of elevated arsenic concentrations intersecting the base of the excavation under Scenarios 1 through 4 was graphically depicted using Tecplot software and is presented in Figure 3 through Figure 6, respectively. Note that there is greater uncertainty in the Scenario 4 estimate (3-foot overexcavation) because data was collected at or below this depth from only a limited set of locations (20 of the boring locations).

The approximate volume of clean soil that consisted of peat or organic silt was estimated by Aspect Consulting by calculating the average thickness of these soils across the excavation footprint. Appropriate uses for these clean organic soils may differ from the uses of more granular soils with a lower organic content.

Cost Estimates

Preliminary order-of-magnitude planning level estimates of incremental environmental costs (including handling and disposal of contaminated materials, overexcavation, and placing a clean fill cap amended with iron) were calculated for each scenario. **The cost estimates presented in this memo are intended to be used to evaluate the range of anticipated costs associated with the different overexcavation scenarios and are likely to change once additional design details are developed.** Estimated costs range from \$1.2 million to \$2.2 million for Scenarios 1 through 4, as shown in Table 1.

These costs represent only the costs anticipated due to elevated occurrences of arsenic, and do not include routine construction costs. They also do not include potential confirmation or performance monitoring costs (e.g., verification samples, surface water monitoring). Costs assume landfill disposal of soil (including peat) and backfilling overexcavated areas with a clean soil cap.

For the purposes of this memo, the soil cap is assumed to include placing granular iron above soils remaining in place that contain elevated arsenic concentrations. The cost for the cap and amendment is very preliminary and is inserted for informational purposes until future design details are developed. The cost estimates are not intended to provide final range of costs at this stage. Actual cap dimensions and composition of the amendment, if necessary, would be determined during design after additional treatability testing is performed and the results are reported in a future technical memo schedule for review in early December 2004. The soil volume calculations indicate a surplus volume of clean capping material is available from materials generated during Phase I and Phase II construction. As a result, the extent of the clean cap could be applied over a greater area which may provide reasonable assurance for long-term protection against arsenic mobility.

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It should be noted that the additional surplus volume of soil available for reuse of a clean cap provides flexibility in the design should mobility or treatability test results indicate unforeseen conditions requiring a greater cap extent. Additionally, it should be noted that if impacted groundwater, encountered during Phase II dewatering operations, is present over a greater area than that indicated by elevated arsenic concentrations in soil at the overexcavation cutplane, the extent (and cost) of placing a treatment cap could be greater.

Alternate Screening Levels

We understand that soils at the site may qualify for alternative cleanup or remediation levels for arsenic based on land use, implementation of institutional controls, or area-wide background concentrations. Therefore, we have developed volume and cost estimates identical to those presented above for two potential alternate screening levels: 40 mg/kg arsenic (twice the MTCA Method A cleanup level for unrestricted use) and 87.5 mg/kg arsenic (the default MTCA Method C cleanup level for industrial use). Volumes were calculated as discussed above. Because of the data distribution and the interpolation method, there was greater uncertainty in the calculated volume of soil exceeding the 87.5 mg/kg screening level. Therefore, the estimated volume exceeding this screening level was increased by a factor of 2 for Scenario 1.

Volumes and cost estimates are provided in Table 2 and Table 3 for screening levels of 40 mg/kg and 87.5 mg/kg, respectively. For a 40 mg/kg screening level, the estimated volume of soil containing elevated arsenic concentrations, and the required overexcavation area, is reduced approximately 50 percent compared to the 20 mg/kg screening level. For an 87.5 mg/kg screening level, the estimated volume is reduced approximately 80 percent. Estimated incremental remediation costs are likewise reduced approximately 50 percent for the 40 mg/kg level (ranging between \$660,000 and \$1,100,000 for Scenarios 1 through 4) and 70 percent for the 87.5 mg/kg level (ranging between \$350,000 and \$610,000 for Scenarios 1 through 4). See Table 2 and Table 3 for details regarding assumptions and line item elements comprising the cost estimates.

Conclusions

Estimated soil volumes, cap dimensions, and preliminary cost estimates for each scenario are summarized in Table 1, for a 20 mg/kg cleanup level. The approximate thickness of soil exceeding the 20 parts per million (ppm) screening level within the design excavation volume across the excavation footprint is shown on Figure 2. This thickness is a generalization for informational purposes only: for instance, a 3-foot thick layer may be a continuous 3-foot soil layer, three separate 1-foot soil layers, or other geometry. Arsenic concentrations in soil at the base of the excavation are shown on Figures 3, 4, 5, and 6 for Scenarios 1 through 4, respectively.

It appears that there will be sufficient clean soil generated from Phase I and Phase II construction activities to place a clean cap for all of the analyzed scenarios; however, if it is desired to use clean peat or organic silt soils as the clean cap material, there may only be sufficient material under Scenarios 1, 2, or 3. In addition the clean cap material will need to be able to provide an appropriate planting media for the scrub-shrub planting planned for the Cell 1 and Cell 2 area. In the event Scenario 4 is selected, organic and non-organic soils may

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be blended to create a sufficient cap volume. The total volume of clean soil remaining in stockpiles after placement of the clean soil cap is estimated to range approximately from 35,000 cubic yards (for Scenario 1) to 23,000 cubic yards (for Scenario 4). Although insufficient data have been collected below the 3-foot overexcavation cutplane to accurately estimate the required excavation volume for a clean fill cap greater than 3 feet thick, it appears due to site construction constraints (i.e., shallow groundwater, wetland soil conditions, construction shoring, etc.) it does not appear practicable to conduct deep overexcavation.

Estimated costs range from approximately \$1.2 to \$2.2 million for the four analyzed scenarios using a screening level of 20 mg/kg arsenic. Costs for scenarios involving overexcavation of contaminated soil and placement of a clean soil cap range from \$490,000 to \$970,000 beyond that of Scenario 1 (excavation to design depth only). The majority of the estimated cost arises from off-site landfill disposal of soils containing elevated concentrations of arsenic. The estimated volume of soil containing elevated concentrations of arsenic ranges from approximately 20,000 cubic yards for Scenario 1 to 31,000 cubic yards for Scenario 4. Establishing an alternate cleanup/remediation level for arsenic at the site could decrease the volume of excavated soil containing elevated arsenic, and the resulting remedial cost, by 50 to 70 percent.

References

King County, 2003a, King County Department of Natural Resources and Parks, Water and Land Resources Division (December 2003). Des Moines Creek Regional CIP, Regional Retention/Detention Facility, Phase 2, Permit Review Submittal, Northwest Pond Excavation and Grading Plans and Sections, Sheet 7 of 15, MAP-NO 2004-03 (7).

King County, 2003b, King County Department of Natural Resources and Parks, Water and Land Resources Division (December 2003). Des Moines Creek Regional CIP, Regional Retention/Detention Facility, Phase 2, Permit Review Submittal, West Berm Excavation Plan and Section, Final Grading and Pavement Profile, Sheet 8 of 15, MAP-NO 2004-03 (8).

King County, 2004, Meredith Radella, Engineer, King County Dept. of Natural Resources & Parks, May, 19 2004: Digital Ground Surface Model dataset supplied via email.

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Attachments

Attachment 1 – Summary of Arsenic Concentrations in Soil

Table 1 – Summary of Estimated Soil Volumes – 20 ppm Arsenic Screening Level

Table 2 – Summary of Estimated Soil Volumes – 40 ppm Arsenic Screening Level

Table 3 – Summary of Estimated Soil Volumes – 87.5 ppm Arsenic Screening Level

Figure 1 – Vertical and Horizontal Distribution of Arsenic in Soil

Figure 2 – Estimated Thickness of Elevated Arsenic in Soil to be Removed to Design
Excavation Surface

Figure 3 – Areas where Arsenic Concentrations Exceed 20 mg/kg at Bottom of Excavation
Area (Scenario 1)

Figure 4 – Areas where Arsenic Concentrations Exceed 20 mg/kg at Bottom of Excavation
Area Overexcavated by One Foot (Scenario 2)

Figure 5 – Areas where Arsenic Concentrations Exceed 20 mg/kg at Bottom of Excavation
Area Overexcavated by Two Feet (Scenario 3)

Figure 6 – Areas where Arsenic Concentrations Exceed 20 mg/kg at Bottom of Excavation
Area Overexcavated by Three Feet (Scenario 4)

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ATTACHMENT 1

**Summary of Arsenic Concentrations
in Soil**

Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCA02	4/28/2004 10:58	A2-SB-1-042804		0	1	TOPSOIL and silty GRAVEL	251	250	14.9
DMCA02	4/28/2004 11:13	A2-SB-2-042804		1	2	SILT with ash and PEAT	250	249	8
DMCA02	4/28/2004 11:17	A2-SB-3-042804		2	3	silty SAND	249	248	17.6
DMCA02	4/28/2004 11:21	A2-SB-4-042804		3	4	silty SAND and GRAVEL	248	247	3.9
DMCA02	4/28/2004 11:26	A2-SB-5-042804		4	5	GRAVEL and SILT	247	246	4.3
DMCA02		A2-SB-6-042804	too wet-no recovery	5	6		246	245	
DMCA02		A2-SB-7-042804	too wet-no recovery	6	7		245	244	
DMCA02		A2-SB-8-042804	too wet-no recovery	7	8		244	243	
DMCA02a	7/29/2004 9:33	A2a-SB-6-072904		5	6	SAND	246	245	3.07
DMCA02a	7/29/2004 9:38	A2a-SB-7-072904		6	7	SAND	245	244	0.87
DMCA02a	7/29/2004 9:39	A2a-SB-8-072904		7	8	SAND	244	243	1.04
DMCB01	4/28/2004 9:24	B1-SB-1-042804		0	1	SOD and silty SAND	254.3	253.3	6.4
DMCB01	4/28/2004 9:25	B1-SB-2-042804		1	2	silty SAND	253.3	252.3	15.8
DMCB01	4/28/2004 9:27	B1-SB-3-042804		2	3	silty SAND and sandy SILT	252.3	251.3	8.8
DMCB01	4/28/2004 9:30	B1-SB-4-042804		3	4	sandy SILT	251.3	250.3	2.1
DMCB01	4/28/2004 9:33	B1-SB-5-042804		4	5	sandy SILT	250.3	249.3	2.5
DMCB01	4/28/2004 9:35	B1-SB-6-042804		5	6	sandy SILT	249.3	248.3	2.3
DMCB01	4/28/2004 9:37	B1-SB-7-042804		6	7	sandy SILT and silty SAND	248.3	247.3	10.5
DMCB01	4/28/2004 9:44	B1-SB-8-042804		7	8	silty SAND	247.3	246.3	4.6
DMCB01		B1-SB-9-042804	too wet-no recovery	8	9		246.3	245.3	
DMCB01		B1-SB-10-042804	too wet-no recovery	9	10		245.3	244.3	
DMCB01		B1-SB-11-042804	too wet-no recovery	10	11		244.3	243.3	
DMCB01a	7/29/2004 9:58	B1a-SB-9-072904		8	9	SAND and SILT	246.2	245.2	4.07
DMCB01a	7/29/2004 9:59	B1a-SB-10-072904		9	10	SAND and SILT	245.2	244.2	3.69
DMCB01a	7/29/2004 10:02	B1a-SB-11-072904		10	11	SILT	244.2	243.2	4.25
DMCB02	4/28/2004 10:13	B2-SB-1-042804		0	1	TOPSOIL and organic SILT	250.1	249.1	11.7
DMCB02	4/28/2004 10:19	B2-SB-2-042804		1	2	organic SILT	249.1	248.1	17.7
DMCB02	4/28/2004 10:22	B2-SB-3-042804		2	3	organic SILT and PEAT	248.1	247.1	47.1
DMCB02	4/28/2004 10:26	042804 Dup-1		3	4	PEAT and silty SAND	247.1	246.1	50.3
DMCB02	4/28/2004 10:26	B2-SB-4-042804		3	4	PEAT and silty SAND	247.1	246.1	45.4
DMCB02	4/28/2004 10:30	B2-SB-5-042804		4	5	silty SAND and sandy SILT	246.1	245.1	5.2
DMCB02	4/28/2004 10:37	B2-SB-6-042804		5	6	sandy SILT	245.1	244.1	4.4
DMCB03	4/28/2004 12:45	B3-SB-1-042804		0	1	TOPSOIL	249.7	248.7	14.8
DMCB03	4/28/2004 12:48	B3-SB-2-042804		1	2	SILT	248.7	247.7	3.9
DMCB03	4/28/2004 12:52	042804 Dup-2		2	3	SILT and PEAT	247.7	246.7	7.4
DMCB03	4/28/2004 12:52	B3-SB-3-042804		2	3	SILT and PEAT	247.7	246.7	8.2
DMCB03	4/28/2004 12:56	B3-SB-4-042804		3	4	PEAT	246.7	245.7	12.6
DMCB03	4/28/2004 12:57	B3-SB-5-042804		4	5	PEAT	245.7	244.7	15.2
DMCB03	4/28/2004 13:02	B3-SB-6-042804		5	6	PEAT	244.7	243.7	22.8
DMCB03	4/28/2004 13:05	B3-SB-7-042804		6	7	PEAT	243.7	242.7	29.4
DMCB04	4/28/2004 13:27	B4-SB-1-042804		0	1	TOPSOIL	246.6	245.6	18.2
DMCB04	4/28/2004 13:32	B4-SB-2-042804		1	2	TOPSOIL	245.6	244.6	7.9
DMCB04	4/28/2004 13:35	B4-SB-3-042804		2	3	PEAT	244.6	243.6	8.9
DMCB04	4/28/2004 13:37	B4-SB-4-042804		3	4	PEAT	243.6	242.6	10.3
DMCC03	4/28/2004 14:21	C3-SB-1-042804		0	1	SOD and SILT and organic SILT	248.7	247.7	6.6
DMCC03	4/28/2004 14:25	C3-SB-2-042804		1	2	organic SILT and SILT	247.7	246.7	3.5
DMCC03	4/28/2004 14:27	C3-SB-3-042804		2	3	organic SILT	246.7	245.7	6.9
DMCC03	4/28/2004 14:30	C3-SB-4-042804		3	4	organic SILT	245.7	244.7	6.8

Notes: 1) Result values in italic type are PREVALIDATED data.

Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCC03	4/28/2004 14:35	C3-SB-5-042804		4	5	PEAT	244.7	243.7	5.4
DMCC04	4/28/2004 14:01	C4-SB-1-042804		0	1	SOD and organic SILT	247.8	246.8	16.1
DMCC04	4/28/2004 14:04	C4-SB-2-042804		1	2	organic SILT	246.8	245.8	6.2
DMCC04a	7/29/2004 12:15	C4a-SB-1-072904		0	1	PEAT	248	247	19.8
DMCC04a	7/29/2004 12:16	C4a-SB-2-072904		1	2	PEAT	247	246	10.5
DMCC04a	7/29/2004 12:17	C4a-SB-3-072904		2	3	PEAT	246	245	17.1
DMCC04a	7/29/2004 12:18	C4a-SB-4-072904		3	4	PEAT	245	244	9.19
DMCC04a	7/29/2004 12:19	C4a-SB-5-072904		4	5	PEAT	244	243	4.49
DMCC04a	7/29/2004 12:20	C4a-SB-6-072904		5	6	PEAT	243	242	7.14
DMCC04a	7/29/2004 12:21	C4a-SB-7-072904	Sample Archived @CAS	6	7	PEAT	242	241	
DMCC04a	7/29/2004 12:22	C4a-SB-8-072904	Sample Archived @CAS	7	8	PEAT	241	240	
DMCC04a	7/29/2004 12:23	C4a-SB-9-072904	Sample Archived @CAS	8	9	PEAT	240	239	
DMCC04a	7/29/2004 12:24	C4a-SB-10-072904	Sample Archived @CAS	9	10	PEAT	239	238	
DMCC04a	7/29/2004 12:25	C4a-SB-11-072904		10	11	PEAT and SILT	238	237	16.6
DMCC04a	7/29/2004 12:26	C4a-SB-12-072904		11	12	SILT	237	236	10.8
DMCC04a	7/29/2004 12:27	C4a-SB-13-072904	Sample Archived @CAS	12	13	SAND	236	235	
DMCD03	4/29/2004 9:00	D3-SB-1-042904		0	1	SOD and SILT	247.9	246.9	2.3 J
DMCD03	4/29/2004 9:00	Dupe-1 042904		0	1	SOD and SILT	247.9	246.9	3.9 J
DMCD03	4/29/2004 9:01	D3-SB-2-042904		1	2	SILT and organic SILT	246.9	245.9	14.8
DMCD03	4/29/2004 9:04	D3-SB-3-042904		2	3	organic SILT	245.9	244.9	3.3
DMCD03	4/29/2004 9:05	D3-SB-4-042904		3	4	PEAT	244.9	243.9	6
DMCD04	4/29/2004 9:32	D4-SB-1-042904		0	1	TOPSOIL and SILT	246.8	245.8	15.9
DMCD04	4/29/2004 9:33	D4-SB-2-042904		1	2	SILT and organic SILT	245.8	244.8	27.8
DMCD04	4/29/2004 9:35	D4-SB-3-042904		2	3	organic SILT and SILT	244.8	243.8	9
DMCD04	4/29/2004 9:39	D4-SB-4-042904		3	4	PEAT and organic SILT	243.8	242.8	9.1
DMCD04	4/29/2004 9:41	D4-SB-5-042904		4	5	organic SILT	242.8	241.8	12.5
DMCE02	4/29/2004 9:59	E2-SB-1-042904		0	1	SOD and silty SAND	250.1	249.1	4.1
DMCE02	4/29/2004 10:02	E2-SB-2-042904		1	2	SILT and organic SILT	249.1	248.1	15.1
DMCE02	4/29/2004 10:04	E2-SB-3-042904		2	3	SILT and organic SILT	248.1	247.1	6
DMCE02	4/29/2004 10:07	E2-SB-4-042904		3	4	organic SILT	247.1	246.1	6.6
DMCE02	4/29/2004 10:10	E2-SB-5-042904		4	5	PEAT	246.1	245.1	28.9
DMCE02	4/29/2004 10:14	E2-SB-6-042904	TCLP	5	6	PEAT	245.1	244.1	164
DMCE02a	7/29/2004 13:10	E2a-SB-6-072904	extra analyses submitted on 09/02/04 on new COC	5	6	PEAT	245.2	244.2	272
DMCE02a	7/29/2004 13:11	E2a-SB-7-072904		6	7	SAND	244.2	243.2	12.6
DMCE02a	7/29/2004 13:12	E2a-SB-8-072904	Sample Archived @CAS	7	8	SILT	243.2	242.2	
DMCE02a	7/29/2004 13:13	E2a-SB-9-072904	Sample Archived @CAS	8	9	SILT	242.2	241.2	
DMCE03	4/29/2004 10:42	E3-SB-1-042904		0	1	TOPSOIL and SILT	248.1	247.1	10.7
DMCE03	4/29/2004 10:46	Dupe-2 042904		1	2	SILT	247.1	246.1	6.8
DMCE03	4/29/2004 10:46	E3-SB-2-042904		1	2	SILT	247.1	246.1	6.4
DMCE03	4/29/2004 10:49	E3-SB-3-042904		2	3	SILT and PEAT	246.1	245.1	9.8
DMCE03	4/29/2004 10:51	E3-SB-4-042904		3	4	organic SILT	245.1	244.1	21.2
DMCE03	4/29/2004 10:53	E3-SB-5-042904		4	5	organic SILT	244.1	243.1	11.2
DMCE04	4/29/2004 12:46	E4-SB-1-042904		0	1	TOPSOIL and GRAVEL	247.1	246.1	2.8
DMCE04	4/29/2004 12:48	E4-SB-2-042904		1	2	GRAVEL	246.1	245.1	19.8
DMCE04	4/29/2004 12:51	E4-SB-3-042904	TCLP	2	3	organic SILT and PEAT	245.1	244.1	170

Notes: 1) Result values in italic type are PREVALIDATED data.

Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCE04	4/29/2004 12:53	E4-SB-4-042904		3	4	PEAT	244.1	243.1	207
DMCE04a	7/29/2004 10:26	E4a-SB-1-072904		0	1	SILT and silty SAND	247.2	246.2	5.07
DMCE04a	7/29/2004 10:27	E4a-SB-2-072904		1	2	silty SAND	246.2	245.2	2.72
DMCE04a	7/29/2004 10:30	E4a-SB-3-072904		2	3	silty SAND and PEAT	245.2	244.2	4.94
DMCE04a	7/29/2004 10:31	E4a-SB-4-072904	extra analyses submitted on 09/02/04 on new COC	3	4	PEAT	244.2	243.2	13.6
DMCE04a	7/29/2004 10:32	E4a-SB-5-072904	extra analyses submitted on 09/02/04 on new COC	4	5	PEAT	243.2	242.2	170
DMCE04a	7/29/2004 10:33	E4a-SB-6-072904	extra analyses submitted on 09/02/04 on new COC	5	6	PEAT	242.2	241.2	351
DMCE04a	7/29/2004 10:35	E4a-SB-7-072904	extra analyses submitted on 09/02/04 on new COC	6	7	SILT	241.2	240.2	24.2
DMCE04a	7/29/2004 10:36	E4a-SB-8-072904	Sample Archived @CAS	7	8	SAND	240.2	239.2	
DMCF02	4/29/2004 12:15	F2-SB-1-042904		0	1	SOD and SILT	250.7	249.7	10.1
DMCF02	4/29/2004 12:18	F2-SB-2-042904		1	2	SILT and organic SILT	249.7	248.7	12.1
DMCF02	4/29/2004 12:19	F2-SB-3-042904		2	3	organic SILT and PEAT	248.7	247.7	48
DMCF02	4/29/2004 12:21	F2-SB-4-042904		3	4	PEAT	247.7	246.7	162
DMCF02	4/29/2004 12:23	F2-SB-5-042904	TCLP	4	5	PEAT	246.7	245.7	201
DMCF02	4/29/2004 12:25	Dupe-3 042904		4	5	PEAT	246.7	245.7	222
DMCF02	4/29/2004 12:28	F2-SB-6-042904		5	6	SILT and SAND and silty SAND	245.7	244.7	27.4
DMCF02	4/29/2004 12:33	F2-SB-7-042904		6	7	silty SAND	244.7	243.7	3.6
DMCF02	4/29/2004 12:36	F2-SB-8-042904		7	8	silty SAND	243.7	242.7	3.4
DMCF03	4/29/2004 13:56	F3-SB-1-042904		0	1	SOD	249.4	248.4	7.4
DMCF03	4/29/2004 13:59	F3-SB-2-042904		1	2	SILT and organic SILT	248.4	247.4	13.2
DMCF03	4/29/2004 14:02	F3-SB-3-042904		2	3	PEAT	247.4	246.4	57
DMCF03	4/29/2004 14:07	F3-SB-4-042904		3	4	PEAT	246.4	245.4	131
DMCF03	4/29/2004 14:10	F3-SB-5-042904		4	5	PEAT	245.4	244.4	172
DMCF03	4/29/2004 14:15	F3-SB-6-042904		5	6	SILT and SAND	244.4	243.4	6.5
DMCF05	4/30/2004 10:28	F5-SB-1-043004		0	1	TOPSOIL	245.6	244.6	19.8
DMCF05	4/30/2004 10:30	F5-SB-2-043004		1	2	TOPSOIL and PEAT	244.6	243.6	7.7
DMCF05	4/30/2004 10:31	Dupe-1-043004		1	2	TOPSOIL and PEAT	244.6	243.6	8.4
DMCF05	4/30/2004 10:35	F5-SB-3-043004		2	3	organic SILT	243.6	242.6	12.8
DMCG02	4/29/2004 13:22	G2-SB-1-042904		0	1	SOD and SILT	249.2	248.2	22.1
DMCG02	4/29/2004 13:24	G2-SB-2-042904		1	2	organic SILT	248.2	247.2	63.4
DMCG02	4/29/2004 13:26	G2-SB-3-042904		2	3	PEAT	247.2	246.2	174
DMCG02	4/29/2004 13:27	Dupe-4 042904		2	3	PEAT	247.2	246.2	159
DMCG02	4/29/2004 13:30	G2-SB-4-042904	TCLP	3	4	PEAT	246.2	245.2	596
DMCG02	4/29/2004 13:34	G2-SB-5-042904		4	5	PEAT and SILT	245.2	244.2	35.5
DMCG02	4/29/2004 13:40	G2-SB-6-042904		5	6	silty SAND and SILT	244.2	243.2	8.1
DMCG02	4/29/2004 13:43	G2-SB-7-042904		6	7	GRAVEL	243.2	242.2	5.1
DMCG02a	7/29/2004 11:26	G2a-SB-1-072904		0	1	silty SAND	249.2	248.2	9.59
DMCG02a	7/29/2004 11:27	G2a-SB-2-072904		1	2	PEAT	248.2	247.2	53.9
DMCG02a	7/29/2004 11:30	G2a-SB-3-072904		2	3	PEAT	247.2	246.2	314
DMCG02a	7/29/2004 11:31	G2a-SB-4-072904		3	4	PEAT	246.2	245.2	181
DMCG02a	7/29/2004 11:32	G2a-SB-5-072904		4	5	SAND	245.2	244.2	16.3
DMCG02a		G2a-SB-6-072904	no recovery	5	6		244.2	243.2	
DMCG02a	7/29/2004 11:35	G2a-SB-7-072904		6	7	SILT	243.2	242.2	3.52
DMCG02a	7/29/2004 11:36	G2a-SB-8-072904	Sample Archived @CAS	7	8	SILT	242.2	241.2	
DMCG05	4/30/2004 9:48	G5-SB-1-043004		0	1	TOPSOIL	247.2	246.2	23.9
DMCG05	4/30/2004 9:51	G5-SB-2-043004		1	2	TOPSOIL and PEAT	246.2	245.2	109

Notes: 1) Result values in italic type are PREVALIDATED data.

Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCG05a	7/28/2004 14:45	G5a-SB-1-072804		0	1	PEAT	247.9	246.9	34.5
DMCG05a	7/28/2004 14:46	G5a-SB-2-072804	extra analyses submitted on 09/02/04 on new COC	1	2	PEAT	246.9	245.9	129
DMCG05a	7/28/2004 14:47	G5a-SB-3-072804	extra analyses submitted on 09/02/04 on new COC	2	3	PEAT	245.9	244.9	66.2
DMCG05a	7/28/2004 14:49	G5a-SB-4-072804		3	4	SAND	244.9	243.9	12.4
DMCG05a	7/28/2004 14:50	G5a-SB-5-072804	Sample Archived @CAS	4	5	SAND	243.9	242.9	
DMCG05a	7/28/2004 14:51	G5a-SB-6-072804	Sample Archived @CAS	5	6	SAND	242.9	241.9	
DMCG05a	7/28/2004 14:52	G5a-SB-7-072804	Sample Archived @CAS	6	7	SILT	241.9	240.9	
DMCG05a	7/28/2004 14:55	G5a-SB-8-072804	Sample Archived @CAS	7	8	SILT and SAND	240.9	239.9	
DMCG05a	7/28/2004 14:56	G5a-SB-9-072804	Sample Archived @CAS	8	9	SAND	239.9	238.9	
DMCG05a	7/28/2004 14:57	G5a-SB-10-072804	Sample Archived @CAS	9	10	SAND	238.9	237.9	
DMCH03	4/22/2004 11:00	H3-SB-1-042204		0	1	TOPSOIL and silty SAND	252	251	6.9
DMCH03	4/22/2004 11:04	H3-SB-2-042204		1	2	silty SAND and TOPSOIL	251	250	11.4
DMCH03	4/22/2004 11:08	H3-SB-3-042204	TCLP	2	3	organic SILT	250	249	106
DMCH03	4/22/2004 11:12	H3-SB-4-042204		3	4	PEAT	249	248	64.6
DMCH03	4/22/2004 11:18	H3-SB-5-042204		4	5	PEAT	248	247	30.9
DMCH03	4/22/2004 11:24	H3-SB-6-042204		5	6	clayey SILT and SAND	247	246	13.2
DMCH03	4/27/2004 9:30	H3-SB-7-042704	Completed with drill rig	6	7	SAND	246	245	6.4
DMCH03	4/27/2004 9:31	H3-SB-8-042704	Completed with drill rig	7	8	SAND	245	244	3.2
DMCH03	4/27/2004 9:32	H3-SB-9-042704	Completed with drill rig	8	9	SAND	244	243	2.1
DMCH04	4/21/2004 14:53	H4-SB-1-042104		0	1	TOPSOIL and silty SAND	251.2	250.2	3.6
DMCH04	4/21/2004 14:55	H4-SB-2-042104		1	2	silty SAND and TOPSOIL	250.2	249.2	6.9
DMCH04	4/21/2004 14:57	H4-SB-3-042104		2	3	organic SILT	249.2	248.2	85.8
DMCH04	4/21/2004 15:00	H4-SB-4-042104	TCLP	3	4	organic SILT and PEAT	248.2	247.2	299
DMCH04	4/21/2004 15:03	H4-SB-5-042104		4	5	PEAT and SAND	247.2	246.2	38.1
DMCH04	4/27/2004 10:15	042704-Dup-1		5	6	SAND	246.2	245.2	15
DMCH04	4/27/2004 10:15	H4-SB-6-042704	Completed with drill rig	5	6	SAND	246.2	245.2	15.7
DMCH04	4/27/2004 10:16	042704-Dup-2	Completed with drill rig	6	7	SAND	245.2	244.2	7.6
DMCH04	4/27/2004 10:16	H4-SB-7-042704	Completed with drill rig	6	7	SAND	245.2	244.2	6.8
DMCH04	4/27/2004 10:17	H4-SB-8-042704	Completed with drill rig	7	8	SAND	244.2	243.2	2.4
DMCH04	4/27/2004 10:18	H4-SB-9-042704	Completed with drill rig	8	9	SAND	243.2	242.2	2.6
DMCH05	4/21/2004 10:50	H5-SB-1-042104		0	1	SOD and silty SAND	249	248	10.6
DMCH05	4/21/2004 10:52	H5-SB-2-042104		1	2	silty SAND and organic SILT	248	247	87.6
DMCH05	4/21/2004 10:54	H5-SB-3-042104	TCLP	2	3	organic SILT	247	246	166
DMCH05	4/21/2004 10:57	H5-SB-4-042104		3	4	organic SILT and clayey SILT	246	245	25.2
DMCH05	4/21/2004 11:01	H5-SB-5-042104		4	5	clayey SILT and SAND	245	244	15.6
DMCH06	4/21/2004 10:26	H6-SB-1-042104		0	1	TOPSOIL	247.5	246.5	21.3
DMCH06	4/21/2004 10:28	H6-SB-2-042104		1	2	TOPSOIL and organic SILT and PEAT	246.5	245.5	58.7
DMCH06	4/21/2004 10:30	042104Dup 2		2	3	PEAT	245.5	244.5	10.8
DMCH06	4/21/2004 10:30	H6-SB-3-042104		2	3	PEAT	245.5	244.5	13
DMCH06	4/21/2004 10:33	H6-SB-4-042104		3	4	PEAT	244.5	243.5	35.5
DMCH06a	7/28/2004 12:42	H6a-SB-4-072804		3	4	PEAT	244.7	243.7	18.5
DMCH06a	7/28/2004 12:43	H6a-SB-5-072804		4	5	PEAT	243.7	242.7	27.1
DMCH06a	7/28/2004 12:55	H6a-SB-6-072804	Sample Archived @CAS	5	6	PEAT	242.7	241.7	

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Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCH06a	7/28/2004 12:52	H6a-SB-7-072804		6	7	PEAT and silty SAND	241.7	240.7	22.1
DMCH06a	7/28/2004 12:53	H6a-SB-8-072804		7	8	silty SAND	240.7	239.7	6.17
DMCH07	4/20/2004 12:51	H7-SB-1-042004		0	1	TOPSOIL	247.1	246.1	14.6
DMCH07	4/20/2004 12:53	H7-SB-2-042004		1	2	TOPSOIL and PEAT	246.1	245.1	19.1
DMCH07	4/20/2004 12:54	H7-SB-3-042004		2	3	PEAT	245.1	244.1	27.1
DMCH07	4/20/2004 12:55	H7-SB-4-042004		3	4	PEAT	244.1	243.1	26.7
DMCH07a	7/28/2004 11:55	H7a-SB-4-072804		3	4	PEAT	244.4	243.4	15.5
DMCH07a	7/28/2004 11:56	H7a-SB-5-072804		4	5	PEAT	243.4	242.4	17.3
DMCH07a	7/28/2004 11:57	H7a-SB-6-072804	Sample Archived @CAS	5	6	PEAT	242.4	241.4	
DMCH07a	7/28/2004 12:00	H7a-SB-7-072804	Sample Archived @CAS	6	7	PEAT	241.4	240.4	
DMCH07a	7/28/2004 12:01	H7a-SB-8-072804	Sample Archived @CAS	7	8	PEAT	240.4	239.4	
DMCH07a	7/28/2004 12:02	H7a-SB-9-072804	Sample Archived @CAS	8	9	PEAT	239.4	238.4	
DMCH07a	7/28/2004 12:03	H7a-SB-10-072804	Sample Archived @CAS	9	10	PEAT	238.4	237.4	
DMCH07a	7/28/2004 12:11	H7a-SB-11-072804	Sample Archived @CAS	10	11	PEAT	237.4	236.4	
DMCH07a	7/28/2004 12:12	H7a-SB-12-072804	Sample Archived @CAS	11	12	PEAT	236.4	235.4	
DMCH07a	7/28/2004 12:13	H7a-SB-13-072804		12	13	PEAT and SILT	235.4	234.4	44
DMCH07a	7/28/2004 12:14	H7a-SB-14-072804		13	14	SILT and SAND	234.4	233.4	9.77
DMCH07a	7/28/2004 12:22	H7a-SB-15-072804	Sample Archived @CAS	14	15	SILT and SAND	233.4	232.4	
DMCH07a		H7a-SB-16-072804	no recovery	15	16		232.4	231.4	
DMCH07a		H7a-SB-17-072804	no recovery	16	17		231.4	230.4	
DMCH07a		H7a-SB-18-072804	no recovery	17	18		230.4	229.4	
DMCH08	4/20/2004 11:49	H8-SB-1-042004		0	1	TOPSOIL and SILT and organic SILT	247.2	246.2	10.1
DMCH08	4/20/2004 11:53	H8-SB-2-042004		1	2	organic SILT and SILT and PEAT	246.2	245.2	11.7
DMCH08	4/20/2004 11:56	H8-SB-3-042004		2	3	PEAT	245.2	244.2	6.2
DMCH08	4/20/2004 11:58	H8-SB-4-042004		3	4	PEAT	244.2	243.2	13.3
DMCH08	4/20/2004 12:00	H8-SB-5-042004		4	5	PEAT	243.2	242.2	25.3
DMCH08a	7/28/2004 10:35	H8a-SB-6-072804		5	6	PEAT	242.4	241.4	33.8
DMCH08a	7/28/2004 10:37	H8a-SB-7-072804		6	7	PEAT	241.4	240.4	9.16
DMCH08a	7/28/2004 10:38	H8a-SB-8-072804	Sample Archived @CAS	7	8	PEAT	240.4	239.4	
DMCH08a	7/28/2004 10:39	H8a-SB-9-072804	Sample Archived @CAS	8	9	PEAT	239.4	238.4	
DMCH08a	7/28/2004 10:40	H8a-SB-10-072804	Sample Archived @CAS	9	10	PEAT	238.4	237.4	
DMCH08a	7/28/2004 10:44	H8a-SB-11-072804	Sample Archived @CAS	10	11	PEAT	237.4	236.4	
DMCH08a	7/28/2004 10:45	H8a-SB-12-072804	Sample Archived @CAS	11	12	PEAT	236.4	235.4	
DMCH08a	7/28/2004 10:46	H8a-SB-13-072804	Sample Archived @CAS	12	13	PEAT	235.4	234.4	
DMCH08a	7/28/2004 10:47	H8a-SB-14-072804	Sample Archived @CAS	13	14	PEAT	234.4	233.4	
DMCH08a	7/28/2004 10:54	H8a-SB-15-072804	Sample Archived @CAS	14	15	PEAT	233.4	232.4	
DMCH08a	7/28/2004 10:55	H8a-SB-16-072804	Sample Archived @CAS	15	16	PEAT	232.4	231.4	
DMCH08a	7/28/2004 10:56	H8a-SB-17-072804	Sample Archived @CAS	16	17	PEAT	231.4	230.4	
DMCH08a	7/28/2004 10:57	H8a-SB-18-072804		17	18	PEAT and SAND	230.4	229.4	15.8
DMCH08a	7/28/2004 11:03	H8a-SB-19-072804		18	19	SAND	229.4	228.4	3.11
DMCH08a	7/28/2004 11:04	H8a-SB-20-072804	Sample Archived @CAS	19	20	SAND	228.4	227.4	
DMCH09	4/19/2004 14:52	H9-SB-1-041904		0	1	SOD and SAND	247.9	246.9	2.4
DMCH09	4/20/2004 8:51	H9-SB-1-042004		0	1	SOD and SAND	247.9	246.9	1.9
DMCH09	4/19/2004 14:56	H9-SB-2-041904		1	2	SAND	246.9	245.9	2.6

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Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCH09	4/20/2004 8:53	H9-SB-2-042004		1	2	SAND	246.9	245.9	2.1
DMCH09	4/20/2004 8:58	H9-SB-3-042004		2	3	SAND and organic SILT	245.9	244.9	3.2
DMCH09	4/20/2004 9:00	042004Dup 1		3	4	organic SILT and PEAT	244.9	243.9	9.3
DMCH09	4/20/2004 9:00	H9-SB-4-042004		3	4	organic SILT and PEAT	244.9	243.9	12.6
DMCH09	4/20/2004 9:03	H9-SB-5-042004		4	5	PEAT	243.9	242.9	19.5
DMCH10	4/19/2004 14:16	H10-SB-1-041904		0	1	SOD and silty SAND	247.9	246.9	10.1
DMCH10	4/19/2004 14:18	H10-SB-2-041904		1	2	silty SAND and PEAT	246.9	245.9	13.9
DMCH10	4/19/2004 14:23	041904Dup-4		2	3	PEAT	245.9	244.9	12.6
DMCH10	4/19/2004 14:23	H10-SB-3-041904		2	3	PEAT	245.9	244.9	8.7
DMCH10	4/19/2004 14:26	H10-SB-4-041904		3	4	PEAT	244.9	243.9	7.7
DMCH10	4/19/2004 14:29	H10-SB-5-041904		4	5	PEAT	243.9	242.9	5.7
DMCH11	4/19/2004 11:02	H11-SB-1-041904		0	1	SOD and silty SAND	248.5	247.5	6
DMCH11	4/19/2004 11:05	H11-SB-2-041904		1	2	silty SAND	247.5	246.5	5
DMCH11	4/19/2004 11:08	H11-SB-3-041904		2	3	silty SAND	246.5	245.5	1.4
DMCH11	4/19/2004 11:10	H11-SB-4-041904		3	4	SAND	245.5	244.5	1.9
DMCH11	4/19/2004 11:15	H11-SB-5-041904		4	5	SAND	244.5	243.5	1.8
DMCH12	4/19/2004 9:56	H12-SB-1-041904		0	1	TOPSOIL and silty SAND	248.3	247.3	8.2
DMCH12	4/19/2004 9:59	H12-SB-2-041904		1	2	silty SAND	247.3	246.3	5.8
DMCH12	4/19/2004 10:02	H12-SB-3-041904		2	3	PEAT	246.3	245.3	13.8
DMCH12	4/19/2004 10:05	H12-SB-4-041904		3	4	PEAT	245.3	244.3	7.7
DMCH12	4/19/2004 10:07	H12-SB-5-041904		4	5	PEAT	244.3	243.3	9.3
DMCH13	4/19/2004 10:33	H13-SB-1-041904		0	1	TOPSOIL and silty SAND	248.4	247.4	6.3
DMCH13	4/19/2004 10:35	H13-SB-2-041904		1	2	silty SAND and PEAT	247.4	246.4	12.5
DMCH13	4/19/2004 10:38	041904Dup-1		2	3	PEAT	246.4	245.4	29.5
DMCH13	4/19/2004 10:38	H13-SB-3-041904		2	3	PEAT	246.4	245.4	31.3
DMCH13	4/19/2004 10:40	H13-SB-4-041904		3	4	PEAT	245.4	244.4	3.8
DMCI02	4/22/2004 13:10	I2-SB-1-042204		0	1	silty SAND and SAND	253.8	252.8	1.8
DMCI02	4/22/2004 13:20	I2-SB-2-042204		1	2	SAND	252.8	251.8	0.6
DMCI02	4/22/2004 13:30	042204Dup3		2	3	SAND	251.8	250.8	0.8
DMCI02	4/22/2004 13:30	I2-SB-3-042204		2	3	SAND	251.8	250.8	0.8
DMCI02	4/22/2004 13:40	I2-SB-4-042204		3	4	SAND	250.8	249.8	1.4
DMCI02	4/27/2004 8:27	I2-SB-5-042704	Completed with drill rig	4	5	SILT	249.8	248.8	2.8
DMCI02	4/27/2004 8:28	I2-SB-6-042704	Completed with drill rig	5	6	SILT	248.8	247.8	2.2
DMCI02	4/27/2004 8:29	I2-SB-7-042704	Completed with drill rig	6	7	SILT	247.8	246.8	3
DMCI02	4/27/2004 8:30	I2-SB-8-042704	Completed with drill rig	7	8	SILT	246.8	245.8	3.6
DMCI02	4/27/2004 8:31	I2-SB-9-042704	Completed with drill rig	8	9	SAND	245.8	244.8	5
DMCI02	4/27/2004 8:32	I2-SB-10-042704	Completed with drill rig	9	10	SAND	244.8	243.8	3.5
DMCI03	4/22/2004 11:45	I3-SB-1-042204		0	1	TOPSOIL	250.4	249.4	28.1
DMCI03	4/22/2004 11:49	I3-SB-2-042204		1	2	SILT and organic SILT	249.4	248.4	61.1
DMCI03	4/22/2004 11:53	042204Dup1		2	3	organic SILT and PEAT	248.4	247.4	107
DMCI03	4/22/2004 11:53	I3-SB-3-042204		2	3	organic SILT and PEAT	248.4	247.4	85.6
DMCI03	4/22/2004 11:57	I3-SB-4-042204		3	4	PEAT	247.4	246.4	111
DMCI03	4/22/2004 12:01	I3-SB-5-042204	TCLP	4	5	PEAT and silty SAND	246.4	245.4	101
DMCI03	4/22/2004 12:05	I3-SB-6-042204		5	6	silty SAND w/ gravel	245.4	244.4	57.9
DMCI03a	7/28/2004 14:08	I3a-SB-5-072804	extra analyses submitted on 09/02/04 on new COC	4	5	PEAT and SILT	246.6	245.6	191
DMCI03a	7/28/2004 14:09	I3a-SB-6-072804		5	6	SILT and SAND	245.6	244.6	49.4
DMCI03a	7/28/2004 14:10	I3a-SB-7-072804	Sample Archived @CAS	6	7	SAND	244.6	243.6	

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Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCI03a	7/28/2004 14:11	I3a-SB-8-072804	Sample Archived @CAS	7	8	SAND	243.6	242.6	
DMCI03a	7/28/2004 14:12	I3a-SB-9-072804	Sample Archived @CAS	8	9	SAND	242.6	241.6	
DMCI04	4/21/2004 14:15	I4-SB-1-042104		0	1	SOD and SILT and organic SILT	250.9	249.9	26.4
DMCI04	4/21/2004 14:18	I4-SB-2-042104		1	2	organic SILT and PEAT	249.9	248.9	31.9
DMCI04	4/21/2004 14:21	I4-SB-3-042104		2	3	PEAT	248.9	247.9	104
DMCI04	4/21/2004 14:24	I4-SB-4-042104		3	4	PEAT	247.9	246.9	96.9
DMCI04	4/21/2004 14:27	042104Dup 6		4	5	PEAT	246.9	245.9	124
DMCI04	4/21/2004 14:27	I4-SB-5-042104	TCLP	4	5	PEAT	246.9	245.9	137
DMCI04	4/21/2004 14:30	I4-SB-6-042104		5	6	PEAT	245.9	244.9	128
DMCI04	4/21/2004 14:33	I4-SB-7-042104		6	7	PEAT	244.9	243.9	106
DMCI04	4/21/2004 14:36	I4-SB-8-042104		7	8	SILT and SAND	243.9	242.9	13
DMCI04a	7/28/2004 13:16	I4a-SB-1-072804		0	1	silty SAND and PEAT	250.8	249.8	9.93
DMCI04a	7/28/2004 13:17	I4a-SB-2-072804		1	2	PEAT	249.8	248.8	13.8
DMCI04a	7/28/2004 13:18	I4a-SB-3-072804		2	3	PEAT	248.8	247.8	89.5
DMCI04a	7/28/2004 13:19	I4a-SB-4-072804		3	4	PEAT	247.8	246.8	190
DMCI04a	7/28/2004 13:20	I4a-SB-5-072804		4	5	PEAT and SILT	246.8	245.8	154
DMCI04a	7/28/2004 13:21	I4a-SB-6-072804	extra analyses submitted on 09/02/04 on new COC	5	6	PEAT and SILT	245.8	244.8	66
DMCI04a	7/28/2004 13:25	I4a-SB-7-072804	extra analyses submitted on 09/02/04 on new COC	6	7	SILT	244.8	243.8	38
DMCI04a	7/28/2004 13:26	I4a-SB-8-072804	Sample Archived @CAS	7	8	SILT and silty SAND	243.8	242.8	
DMCI05	4/21/2004 11:15	I5-SB-1-042104		0	1	SOD and SILT organic SILT and PEAT	251.4	250.4	9.8
DMCI05	4/21/2004 11:18	I5-SB-2-042104		1	2	PEAT	250.4	249.4	6.9
DMCI05	4/21/2004 11:21	I5-SB-3-042104		2	3	PEAT	249.4	248.4	21.9
DMCI05	4/21/2004 11:24	042104Dup 3		3	4	PEAT	248.4	247.4	57.9
DMCI05	4/21/2004 11:24	I5-SB-4-042104		3	4	PEAT	248.4	247.4	55
DMCI05	4/21/2004 11:28	I5-SB-5-042104		4	5	PEAT	247.4	246.4	113
DMCI05	4/21/2004 11:31	I5-SB-6-042104	TCLP	5	6	PEAT	246.4	245.4	160
DMCI05	4/21/2004 11:35	I5-SB-7-042104		6	7	SILT and SAND	245.4	244.4	14.1
DMCI05		I5-SB-8-042104	too wet-no recovery	7	8		244.4	243.4	
DMCI06	4/21/2004 9:46	I6-SB-1-042104		0	1	SOD and silty SAND and organic SILT	250.6	249.6	6.7
DMCI06	4/21/2004 9:49	I6-SB-2-042104		1	2	SILT and organic SILT and PEAT	249.6	248.6	6.6
DMCI06	4/21/2004 9:55	I6-SB-3-042104		2	3	PEAT	248.6	247.6	8.6
DMCI06	4/21/2004 10:00	I6-SB-4-042104		3	4	PEAT	247.6	246.6	48.4
DMCI06	4/21/2004 10:05	I6-SB-5-042104		4	5	PEAT	246.6	245.6	32.8
DMCI06		I6-SB-6-042104	too wet-no recovery	5	6	PEAT	245.6	244.6	
DMCI06		I6-SB-7-042104	too wet-no recovery	6	7	PEAT	244.6	243.6	
DMCI06a	7/27/2004 15:28	I6a-SB-6-072704	extra analyses submitted on 09/02/04 on new COC	5	6	PEAT	245.5	244.5	127
DMCI06a	7/27/2004 15:31	I6a-SB-7-072704	extra analyses submitted on 09/02/04 on new COC	6	7	PEAT	244.5	243.5	153
DMCI06a	7/27/2004 15:32	I6a-SB-8-072704		7	8	PEAT and SILT	243.5	242.5	23.1
DMCI06a	7/27/2004 15:33	I6a-SB-9-072704		8	9	SILT	242.5	241.5	6.47
DMCI06a	7/27/2004 15:34	I6a-SB-10-072704	Sample Archived @CAS	9	10	SAND	241.5	240.5	
DMCI07	4/20/2004 13:11	I7-SB-1-042004		0	1	SOD and silty SAND organic SILT and PEAT	249.6	248.6	3.9
DMCI07	4/20/2004 13:12	I7-SB-2-042004		1	2	PEAT	248.6	247.6	4.5
DMCI07	4/20/2004 13:16	I7-SB-3-042004		2	3	SILT and organic SILT	247.6	246.6	20.2
DMCI07	4/20/2004 13:19	042004Dup 4		3	4	organic SILT	246.6	245.6	20.2

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Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMC107	4/20/2004 13:19	I7-SB-4-042004		3	4	organic SILT	246.6	245.6	27.1
DMC107	4/20/2004 13:21	I7-SB-5-042004		4	5	PEAT	245.6	244.6	79.6
DMC107		I7-SB-6-042004	too wet-no recovery	5	6	PEAT	244.6	243.6	
DMC107		I7-SB-7-042004	too wet-no recovery	6	7	PEAT	243.6	242.6	
DMC107a	7/27/2004 16:01	I7a-SB-6-072704		5	6	PEAT	244.3	243.3	130
DMC107a	7/27/2004 16:05	I7a-SB-7-072704		6	7	PEAT	243.3	242.3	53.5
DMC107a	7/27/2004 16:06	I7a-SB-8-072704		7	8	PEAT	242.3	241.3	30.1
DMC107a	7/27/2004 16:07	I7a-SB-9-072704		8	9	PEAT	241.3	240.3	151
DMC107a	7/27/2004 16:08	I7a-SB-10-072704		9	10	PEAT and silty SAND	240.3	239.3	79
DMC107a		I7a-SB-11-072704		10	11		239.3	238.3	
DMC107a		I7a-SB-12-072704		11	12		238.3	237.3	
DMC107a		I7a-SB-13-072704		12	13		237.3	236.3	
DMC107a		I7a-SB-14-072704		13	14		236.3	235.3	
DMC107a	7/27/2004 16:20	I7a-SB-15-072704		14	15	SAND	235.3	234.3	4.5
DMC107a	7/27/2004 16:21	I7a-SB-16-072704	Sample Archived @CAS	15	16	SAND	234.3	233.3	
DMC108	4/20/2004 11:13	I8-SB-1-042004		0	1	SOD and silty SAND	249.2	248.2	5.9
DMC108	4/20/2004 11:16	I8-SB-2-042004		1	2	silty SAND and organic SILT	248.2	247.2	16.3
DMC108	4/20/2004 11:19	I8-SB-3-042004		2	3	organic SILT	247.2	246.2	18.3
DMC108	4/20/2004 11:21	I8-SB-4-042004		3	4	organic SILT and SILT and PEAT	246.2	245.2	2.2
DMC108	4/20/2004 11:25	042004Dup 3		4	5	PEAT	245.2	244.2	18.6
DMC108	4/20/2004 11:25	I8-SB-5-042004		4	5	PEAT	245.2	244.2	22.6
DMC108		I8-SB-6-042004	too wet-no recovery	5	6	PEAT	244.2	243.2	
DMC108a	7/28/2004 9:27	I8a-SB-6-072804		5	6	PEAT	244.2	243.2	9
DMC108a	7/28/2004 9:33	I8a-SB-7-072804		6	7	PEAT	243.2	242.2	7.36
DMC108a	7/28/2004 9:34	I8a-SB-8-072804		7	8	PEAT	242.2	241.2	7.78
DMC108a	7/28/2004 9:35	I8a-SB-9-072804		8	9	PEAT	241.2	240.2	6.94
DMC108a	7/28/2004 9:36	I8a-SB-10-072804	Sample Archived @CAS	9	10	PEAT	240.2	239.2	
DMC108a	7/28/2004 9:39	I8a-SB-11-072804	Sample Archived @CAS	10	11	PEAT	239.2	238.2	
DMC108a	7/28/2004 9:40	I8a-SB-12-072804	Sample Archived @CAS	11	12	PEAT	238.2	237.2	
DMC108a	7/28/2004 9:41	I8a-SB-13-072804	Sample Archived @CAS	12	13	PEAT	237.2	236.2	
DMC108a	7/28/2004 9:42	I8a-SB-14-072804	Sample Archived @CAS	13	14	PEAT	236.2	235.2	
DMC108a	7/28/2004 9:43	I8a-SB-15-072804	Sample Archived @CAS	14	15	PEAT	235.2	234.2	
DMC108a	7/28/2004 9:44	I8a-SB-16-072804	Sample Archived @CAS	15	16	PEAT	234.2	233.2	
DMC108a	7/28/2004 9:45	I8a-SB-17-072804	Sample Archived @CAS	16	17	PEAT	233.2	232.2	
DMC108a	7/28/2004 9:46	I8a-SB-18-072804	Sample Archived @CAS	17	18	PEAT	232.2	231.2	
DMC108a	7/28/2004 9:47	I8a-SB-19-072804	Sample Archived @CAS	18	19	PEAT	231.2	230.2	
DMC108a	7/28/2004 9:48	I8a-SB-20-072804	Sample Archived @CAS	19	20	PEAT	230.2	229.2	
DMC108a	7/28/2004 9:49	I8a-SB-21-072804	Sample Archived @CAS	20	21	PEAT	229.2	228.2	
DMC108a	7/28/2004 9:50	I8a-SB-22-072804		21	22	PEAT and SILT	228.2	227.2	30.2
DMC108a	7/28/2004 10:03	I8a-SB-23-072804		22	23	SILT	227.2	226.2	5.26
DMC108a	7/28/2004 10:04	I8a-SB-24-072804	Sample Archived @CAS	23	24	SILT	226.2	225.2	
DMCI09	4/20/2004 9:18	I9-SB-1-042004		0	1	SOD and silty SAND	248.6	247.6	10.2
DMCI09	4/20/2004 9:21	I9-SB-2-042004		1	2	silty SAND and SAND	247.6	246.6	1.5
DMCI09	4/20/2004 9:25	I9-SB-3-042004		2	3	SAND and PEAT	246.6	245.6	19.3
DMCI09	4/20/2004 9:27	I9-SB-4-042004		3	4	PEAT	245.6	244.6	29.5
DMCI09	4/20/2004 9:30	I9-SB-5-042004		4	5	PEAT	244.6	243.6	24.4

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Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCI10	4/19/2004 13:55	I10-SB-1-041904		0	1	SOD and silty SAND	249.4	248.4	2
DMCI10	4/19/2004 14:01	I10-SB-2-041904		1	2	silty SAND	248.4	247.4	2.4
DMCI10	4/28/2004 10:10	I10-SB-3-042804	Completed with drill rig	2	3	SAND	247.4	246.4	1.5
DMCI10	4/28/2004 10:11	042804-Dup-3	Completed with drill rig	3	4	SAND and PEAT	246.4	245.4	17.3
DMCI10	4/28/2004 10:11	I10-SB-4-042804	Completed with drill rig	3	4	SAND and PEAT	246.4	245.4	18.6
DMCI10	4/28/2004 10:12	I10-SB-5-042804	Completed with drill rig	4	5	PEAT	245.4	244.4	5.6
DMCI11	4/19/2004 12:28	I11-SB-1 041904		0	1	SOD and silty SAND	248.8	247.8	1.9
DMCI11	4/19/2004 12:32	I11-SB-2 041904		1	2	silty SAND	247.8	246.8	3
DMCI11	4/19/2004 12:35	I11-SB-3 041904		2	3	silty SAND and SAND	246.8	245.8	1.7
DMCI11	4/19/2004 12:37	041904Dup-2		3	4	SAND and PEAT	245.8	244.8	12.5
DMCI11	4/19/2004 12:37	I11-SB-4 041904		3	4	SAND and PEAT	245.8	244.8	16
DMCI11a	7/26/2004 12:15	I11a-SB-7-072604		5	7	SILTY SAND W/ PEAT, SAND to SILTY SAND	243.8	241.8	2.9
DMCI11a	7/26/2004 12:20	I11a-SB-9-072604		7	9	SAND to SILTY SAND	241.8	239.8	4
DMCI11a		I11a-SB-11-072604		9	11		239.8	237.8	
DMCI12	4/19/2004 11:31	I12-SB-1 041904		0	1	SOD and silty SAND	247.5	246.5	2.8
DMCI12	4/19/2004 11:33	I12-SB-2 041904		1	2	silty SAND and SAND	246.5	245.5	1.7
DMCI12	4/19/2004 11:35	I12-SB-3 041904		2	3	SAND	245.5	244.5	2.1
DMCI12	4/19/2004 11:38	I12-SB-4 041904		3	4	SAND	244.5	243.5	1.5
DMCI12	4/19/2004 11:39	I12-SB-5 041904		4	5	SAND	243.5	242.5	1.4
DMCJ03	4/22/2004 12:43	J3-SB-1-042204		0	1	TOPSOIL and silty SAND	251	250	32.5
DMCJ03	4/22/2004 12:47	042204Dup2		1	2	silty SAND	250	249	40.6
DMCJ03	4/22/2004 12:47	J3-SB-2-042204		1	2	silty SAND	250	249	46.9
DMCJ03	4/22/2004 12:51	J3-SB-3-042204		2	3	TOPSOIL and SAND and GRAVEL	249	248	45.9
DMCJ03	4/27/2004 13:00	J3-SB-3-042704	Completed with drill rig	2	3	SAND	249	248	1.8
DMCJ03	4/22/2004 12:55	J3-SB-4-042204		3	4	SAND and GRAVEL	248	247	14.3
DMCJ03	4/27/2004 13:01	J3-SB-4-042704	Completed with drill rig	3	4	SAND	248	247	0.9
DMCJ03	4/22/2004 12:59	J3-SB-5-042204		4	5	SILT and GRAVEL	247	246	7.3
DMCJ03	4/27/2004 13:02	J3-SB-5-042704	Completed with drill rig	4	5	SAND	247	246	1.2
DMCJ03	4/22/2004 13:03	J3-SB-6-042204		5	6	SAND and GRAVEL	246	245	6.8
DMCJ03	4/27/2004 13:03	J3-SB-6-042704	Completed with drill rig	5	6	SAND	246	245	1.3
DMCJ03	4/22/2004 13:09	J3-SB-7-042204		6	7	SAND and GRAVEL	245	244	5.3
DMCJ03	4/27/2004 13:10	J3-SB-7-042704	Completed with drill rig	6	7	SAND	245	244	1.3
DMCJ03	4/27/2004 13:11	J3-SB-8-042704	Completed with drill rig	7	8	SAND	244	243	1.7
DMCJ03	4/27/2004 13:12	J3-SB-9-042704	Completed with drill rig	8	9	SAND	243	242	1
DMCJ03	4/27/2004 13:13	J3-SB-10-042704	Completed with drill rig	9	10	SAND	242	241	1.4
DMCJ03	4/27/2004 13:15	J3-SB-11-042704	Completed with drill rig	10	11	GRAVEL	241	240	1.6
DMCJ03		J3-SB-12-042704	refusal dense soils-no recovery	11	12		240	239	
DMCJ04	4/21/2004 13:30	J4-SB-1-042104		0	1	TOPSOIL and organic SILT	250.9	249.9	27.3
DMCJ04	4/21/2004 13:35	042104Dup 5		1	2	organic SILT	249.9	248.9	32.1
DMCJ04	4/21/2004 13:35	J4-SB-2-042104		1	2	organic SILT	249.9	248.9	43.6
DMCJ04	4/21/2004 13:40	J4-SB-3-042104	TCLP	2	3	organic SILT and PEAT	248.9	247.9	429
DMCJ04	4/21/2004 13:45	J4-SB-4-042104		3	4	PEAT	247.9	246.9	102
DMCJ04	4/21/2004 13:50	J4-SB-5-042104		4	5	SILT and SAND	246.9	245.9	17.3
DMCJ04	4/21/2004 13:55	J4-SB-6-042104		5	6	SAND	245.9	244.9	9
DMCJ04	4/27/2004 11:05	J4-SB-6-042704	Completed with drill rig	5	6	SAND	245.9	244.9	2.7
DMCJ04	4/27/2004 11:06	J4-SB-7-042704	Completed with drill rig	6	7	SAND	244.9	243.9	1.6
DMCJ04	4/27/2004 11:07	J4-SB-8-042704	Completed with drill rig	7	8	SAND	243.9	242.9	1.3
DMCJ04	4/27/2004 11:08	J4-SB-9-042704	Completed with drill rig	8	9	SAND	242.9	241.9	1.5
DMCJ05	4/21/2004 12:26	J5-SB-1-042104		0	1	SOD and organic SILT	250.3	249.3	12.2

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Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCJ05	4/21/2004 12:29	J5-SB-2-042104		1	2	organic SILT	249.3	248.3	20.4
DMCJ05	4/21/2004 12:32	J5-SB-3-042104		2	3	organic SILT and PEAT	248.3	247.3	24.7
DMCJ05	4/21/2004 12:35	J5-SB-4-042104	TCLP	3	4	PEAT	247.3	246.3	111
DMCJ05	4/21/2004 12:38	042104Dup 4		4	5	PEAT	246.3	245.3	67
DMCJ05	4/21/2004 12:38	J5-SB-5-042104		4	5	PEAT	246.3	245.3	67.7
DMCJ05	4/21/2004 12:43	J5-SB-6-042104		5	6	PEAT	245.3	244.3	64.6
DMCJ05	4/21/2004 12:47	J5-SB-7-042104		6	7	PEAT	244.3	243.3	49.1
DMCJ06	4/21/2004 9:13	J6-SB-1-042104		0	1	SOD and SILT and organic SILT	249.8	248.8	9.2
DMCJ06	4/21/2004 9:15	J6-SB-2-042104		1	2	organic SILT	248.8	247.8	8.2
DMCJ06	4/21/2004 9:17	J6-SB-3-042104		2	3	organic SILT and PEAT	247.8	246.8	28.2
DMCJ06	4/21/2004 9:20	J6-SB-4-042104		3	4	PEAT	246.8	245.8	173
DMCJ06	4/21/2004 9:23	042104Dup 1		4	5	PEAT	245.8	244.8	174
DMCJ06	4/21/2004 9:23	J6-SB-5-042104	TCLP	4	5	PEAT	245.8	244.8	181
DMCJ06	4/21/2004 9:27	J6-SB-6-042104		5	6	PEAT	244.8	243.8	14.6
DMCJ07	4/20/2004 13:41	J7-SB-1-042004		0	1	SOD and SILT	249.8	248.8	7.3
DMCJ07	4/20/2004 13:43	J7-SB-2-042004		1	2	organic SILT and PEAT	248.8	247.8	2.3
DMCJ07	4/20/2004 13:45	J7-SB-3-042004		2	3	PEAT	247.8	246.8	15.8
DMCJ07	4/20/2004 13:48	J7-SB-4-042004	TCLP	3	4	PEAT	246.8	245.8	158
DMCJ07	4/20/2004 13:51	042004Dup 5		4	5	PEAT	245.8	244.8	207
DMCJ07	4/20/2004 13:51	J7-SB-5-042004	TCLP	4	5	PEAT	245.8	244.8	234
DMCJ07	4/20/2004 13:56	J7-SB-6-042004		5	6	PEAT and SILT	244.8	243.8	96.5
DMCJ07a	7/27/2004 14:17	J7a-SB-1-072704		0	1	silty SAND and PEAT	249.8	248.8	8.82
DMCJ07a	7/27/2004 14:18	J7a-SB-2-072704		1	2	silty SAND and PEAT	248.8	247.8	6.11
DMCJ07a	7/27/2004 14:21	J7a-SB-3-072704		2	3	PEAT	247.8	246.8	31.8
DMCJ07a	7/27/2004 14:22	J7a-SB-4-072704	extra analyses submitted on 09/02/04 on new COC	3	4	PEAT	246.8	245.8	218
DMCJ07a	7/27/2004 14:23	J7a-SB-5-072704	extra analyses submitted on 09/02/04 on new COC	4	5	PEAT	245.8	244.8	194
DMCJ07a	7/27/2004 14:24	J7a-SB-6-072704		5	6	SILT and SAND	244.8	243.8	10.3
DMCJ07a	7/27/2004 14:38	J7a-SB-7-072704	Sample Archived @CAS	6	7	SAND	243.8	242.8	
DMCJ07a	7/27/2004 14:39	J7a-SB-8-072704	Sample Archived @CAS	7	8	SAND	242.8	241.8	
DMCJ07a	7/27/2004 14:40	J7a-SB-9-072704	Sample Archived @CAS	8	9	SAND	241.8	240.8	
DMCJ07a	7/27/2004 14:41	J7a-SB-10-072704	Sample Archived @CAS	9	10	SAND	240.8	239.8	
DMCJ07a	7/27/2004 14:49	J7a-SB-11-072704	Sample Archived @CAS	10	11	SAND	239.8	238.8	
DMCJ07a	7/27/2004 14:50	J7a-SB-12-072704	Sample Archived @CAS	11	12	SAND	238.8	237.8	
DMCJ07a	7/27/2004 14:51	J7a-SB-13-072704	Sample Archived @CAS	12	13	SAND	237.8	236.8	
DMCJ07a	7/27/2004 14:52	J7a-SB-14-072704	Sample Archived @CAS	13	14	SAND	236.8	235.8	
DMCJ07a		J7a-SB-15-072704		14	15		235.8	234.8	
DMCJ07a		J7a-SB-16-072704		15	16		234.8	233.8	
DMCJ07a		J7a-SB-17-072704		16	17		233.8	232.8	
DMCJ08	4/20/2004 10:36	J8-SB-1-042004		0	1	SOD	249.3	248.3	3.7
DMCJ08	4/20/2004 10:38	J8-SB-2-042004		1	2	organic SILT	248.3	247.3	6.5
DMCJ08	4/20/2004 10:41	042004Dup 2		2	3	organic SILT and SILT and PEAT	247.3	246.3	16.7
DMCJ08	4/20/2004 10:41	J8-SB-3-042004		2	3	organic SILT and SILT and PEAT	247.3	246.3	13.2
DMCJ08	4/20/2004 10:43	J8-SB-4-042004		3	4	PEAT	246.3	245.3	25.7
DMCJ08	4/20/2004 10:44	J8-SB-5-042004		4	5	PEAT	245.3	244.3	3.9

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Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCJ08	4/20/2004 10:49	J8-SB-6-042004		5	6	PEAT	244.3	243.3	7.2
DMCJ09	4/19/2004 9:10	J9-SB-1 041904		0	1	SOD and organic SILT and SILT	248.9	247.9	13.4
DMCJ09	4/19/2004 9:15	J9-SB-2 041904		1	2	PEAT	247.9	246.9	6.5
DMCJ09	4/19/2004 9:16	J9-SB-3 041904		2	3	PEAT	246.9	245.9	6.5
DMCJ09	4/19/2004 9:17	J9-SB-4 041904		3	4	PEAT	245.9	244.9	4.8
DMCJ09		J9-SB-5 041904	too wet-no recovery	4	5		244.9	243.9	
DMCJ09a	7/27/2004 10:00	J9a-SB-5-072704		4	5	PEAT	245	244	17.8
DMCJ09a	7/27/2004 10:01	J9a-SB-6-072704		5	6	PEAT	244	243	10.4
DMCJ09a	7/27/2004 10:10	J9a-SB-7-072704		6	7	PEAT	243	242	15.2
DMCJ09a	7/27/2004 10:11	J9a-SB-8-072704	Sample Archived @CAS	7	8	PEAT	242	241	
DMCJ09a	7/27/2004 10:12	J9a-SB-9-072704	Sample Archived @CAS	8	9	PEAT	241	240	
DMCJ09a	7/27/2004 10:13	J9a-SB-10-072704	Sample Archived @CAS	9	10	PEAT	240	239	
DMCJ09a	7/27/2004 10:19	J9a-SB-11-072704	Sample Archived @CAS	10	11	PEAT	239	238	
DMCJ09a	7/27/2004 10:20	J9a-SB-12-072704	Sample Archived @CAS	11	12	PEAT	238	237	
DMCJ09a	7/27/2004 10:21	J9a-SB-13-072704	Sample Archived @CAS	12	13	PEAT	237	236	
DMCJ09a	7/27/2004 10:22	J9a-SB-14-072704	Sample Archived @CAS	13	14	PEAT	236	235	
DMCJ09a	7/27/2004 10:30	J9a-SB-15-072704		14	15	PEAT and silty SAND	235	234	25.7
DMCJ09a	7/27/2004 10:31	J9a-SB-16-072704		15	16	silty SAND	234	233	6.88
DMCJ09a	7/27/2004 10:32	J9a-SB-17-072704	Sample Archived @CAS	16	17	silty SAND	233	232	
DMCJ10	4/19/2004 13:25	J10-SB-1 041904		0	1	SOD and organic SILT	248.9	247.9	13.2
DMCJ10	4/19/2004 13:27	041904Dup-3		1	2	PEAT and SILT	247.9	246.9	24.1
DMCJ10	4/19/2004 13:27	J10-SB-2 041904		1	2	PEAT and SILT	247.9	246.9	25.1
DMCJ10	4/19/2004 13:29	J10-SB-3 041904	TCLP	2	3	PEAT	246.9	245.9	295
DMCJ10	4/19/2004 13:31	J10-SB-4 041904	TCLP	3	4	PEAT	245.9	244.9	332
DMCJ10	4/19/2004 13:33	J10-SB-5 041904		4	5	PEAT	244.9	243.9	146
DMCJ10a	7/26/2004 14:00	J10a-SB-1-072604	Sample Archived @CAS	0	1	SAND and PEAT	248.9	247.9	
DMCJ10a	7/26/2004 14:02	J10a-SB-2-072604	Sample Archived @CAS	1	2	PEAT	247.9	246.9	
DMCJ10a	7/26/2004 14:04	J10a-SB-3-072604	extra analyses submitted on 09/02/04 on new COC	2	3	PEAT	246.9	245.9	55
DMCJ10a	7/26/2004 14:06	J10a-SB-4-072604	extra analyses submitted on 09/02/04 on new COC	3	4	PEAT	245.9	244.9	168
DMCJ10a	7/26/2004 14:08	J10a-SB-5-072604	extra analyses submitted on 09/02/04 on new COC	4	5	PEAT	244.9	243.9	221
DMCJ10a	7/26/2004 14:10	J10a-SB-6-072604	extra analyses submitted on 09/02/04 on new COC	5	6	PEAT	243.9	242.9	147
DMCJ10a	7/26/2004 14:12	J10a-SB-7-072604	extra analyses submitted on 09/02/04 on new COC	6	7	PEAT	242.9	241.9	159
DMCJ10a	7/26/2004 14:14	J10a-SB-8-072604	extra analyses submitted on 09/02/04 on new COC	7	8	PEAT	241.9	240.9	62.6
DMCJ10a	7/26/2004 14:16	J10a-SB-9-072604	extra analyses submitted on 09/02/04 on new COC	8	9	PEAT	240.9	239.9	46.1
DMCJ10a	7/26/2004 14:18	J10a-SB-10-072604	extra analyses submitted on 09/02/04 on new COC	9	10	PEAT	239.9	238.9	52.7
DMCJ10a	7/26/2004 14:20	J10a-SB-11-072604	extra analyses submitted on 09/02/04 on new COC	10	11	PEAT	238.9	237.9	53.5

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Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCJ10a	7/26/2004 14:22	J10a-SB-12-072604	extra analyses submitted on 09/02/04 on new COC	11	12	PEAT	237.9	236.9	174
DMCJ10a	7/26/2004 14:24	J10a-SB-13-072604	extra analyses submitted on 09/02/04 on new COC	12	13	PEAT	236.9	235.9	324
DMCJ10a	7/26/2004 14:26	J10a-SB-14-072604	extra analyses submitted on 09/02/04 on new COC	13	14	PEAT and SILTY SAND	235.9	234.9	142
DMCJ10a	7/26/2004 14:28	J10a-SB-15-072604		14	15	SILTY SAND	234.9	233.9	6.1
DMCJ10a	7/26/2004 14:29	J10a-SB-16-072604	Sample Archived @CAS	15	16	SAND with GRAVEL	233.9	232.9	
DMCJ10b	7/26/2004 13:10	J10b-SB-1-072604		0	1	SILTY SAND	248.5	247.5	8.6
DMCJ10b	7/26/2004 13:12	J10b-SB-2-072604		1	2	PEAT	247.5	246.5	5.5
DMCJ10b	7/26/2004 13:14	J10b-SB-3-072604		2	3	PEAT	246.5	245.5	11.8
DMCJ10b	7/26/2004 13:16	J10b-SB-4-072604	Sample Archived @CAS	3	4	PEAT	245.5	244.5	
DMCJ10b	7/26/2004 13:18	J10b-SB-5-072604	Sample Archived @CAS	4	5	PEAT	244.5	243.5	
DMCJ10b	7/26/2004 13:20	J10b-SB-6-072604	Sample Archived @CAS	5	6	PEAT	243.5	242.5	
DMCJ10b	7/26/2004 13:22	J10b-SB-7-072604	Sample Archived @CAS	6	7	PEAT	242.5	241.5	
DMCJ10b	7/26/2004 13:24	J10b-SB-8-072604	Sample Archived @CAS	7	8	PEAT	241.5	240.5	
DMCJ10b	7/26/2004 13:26	J10b-SB-9-072604	Sample Archived @CAS	8	9	PEAT	240.5	239.5	
DMCJ10b	7/26/2004 13:28	J10b-SB-01-072604	Sample Archived @CAS	9	10	PEAT	239.5	238.5	
DMCJ10b	7/26/2004 13:30	J10b-SB-11-072604	Sample Archived @CAS	10	11	PEAT	238.5	237.5	
DMCJ10b	7/26/2004 13:32	J10b-SB-12-072604	Sample Archived @CAS	11	12	PEAT	237.5	236.5	
DMCJ10b	7/26/2004 13:34	J10b-SB-13-072604	Sample Archived @CAS	12	13	PEAT	236.5	235.5	
DMCJ10b	7/26/2004 13:36	J10b-SB-14-072604	Sample Archived @CAS	13	14	PEAT	235.5	234.5	
DMCJ10b	7/26/2004 13:38	J10b-SB-15-072604	Sample Archived @CAS	14	15	PEAT	234.5	233.5	
DMCJ10b	7/26/2004 13:40	J10b-SB-16-072604		15	16	PEAT and SLIGHTLY SANDY CLAYEY SILT	233.5	232.5	5
DMCJ10b	7/26/2004 13:42	J10b-SB-17-072604		16	17	SLIGHTLY SANDY CLAYEY SILT	232.5	231.5	5.2
DMCJ10c	7/26/2004 15:18	J10c-SB-1-072604		0	1	SILTY SAND and PEAT	249.5	248.5	13.3
DMCJ10c	7/26/2004 15:19	J10c-SB-2-072604		1	2	PEAT	248.5	247.5	6.07
DMCJ10c	7/26/2004 15:23	J10c-SB-3-072604		2	3	PEAT	247.5	246.5	6.34
DMCJ10c	7/26/2004 15:24	J10c-SB-4-072604	Sample Archived @CAS	3	4	PEAT	246.5	245.5	
DMCJ10c	7/26/2004 15:25	J10c-SB-5-072604	Sample Archived @CAS	4	5	PEAT	245.5	244.5	
DMCJ10c	7/26/2004 15:26	J10c-SB-6-072604	Sample Archived @CAS	5	6	PEAT	244.5	243.5	
DMCJ10c	7/26/2004 15:36	J10c-SB-7-072604	Sample Archived @CAS	6	7	PEAT	243.5	242.5	
DMCJ10c	7/26/2004 15:37	J10c-SB-8-072604	Sample Archived @CAS	7	8	PEAT	242.5	241.5	
DMCJ10c	7/26/2004 15:38	J10c-SB-9-072604	Sample Archived @CAS	8	9	PEAT	241.5	240.5	
DMCJ10c	7/26/2004 15:39	J10c-SB-10-072604	Sample Archived @CAS	9	10	PEAT	240.5	239.5	
DMCJ10c	7/26/2004 15:46	J10c-SB-11-072604	Sample Archived @CAS	10	11	PEAT	239.5	238.5	
DMCJ10c	7/26/2004 15:47	J10c-SB-12-072604	Sample Archived @CAS	11	12	PEAT	238.5	237.5	
DMCJ10c	7/26/2004 15:48	J10c-SB-13-072604	Sample Archived @CAS	12	13	PEAT	237.5	236.5	
DMCJ10c	7/26/2004 15:49	J10c-SB-14-072604		13	14	PEAT	236.5	235.5	64.8
DMCJ10c	7/26/2004 15:56	J10c-SB-15-072604		14	15	SILT with SAND	235.5	234.5	11.4

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Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCJ10c	7/26/2004 15:57	J10c-SB-16-072604	Sample Archived @CAS	15	16	SILT with SAND	234.5	233.5	
DMCJ10c	7/26/2004 15:58	J10c-SB-17-072604	Sample Archived @CAS	16	17	SAND	233.5	232.5	
DMCJ10d	7/27/2004 8:46	J10d-SB-1-072704		0	1	silty SAND and PEAT	248.8	247.8	7.97
DMCJ10d	7/27/2004 8:47	J10d-SB-2-072704		1	2	PEAT	247.8	246.8	4.74
DMCJ10d	7/27/2004 8:55	J10d-SB-3-072704		2	3	PEAT	246.8	245.8	13.5
DMCJ10d	7/27/2004 8:56	J10d-SB-4-072704		3	4	PEAT	245.8	244.8	11.1
DMCJ10d	7/27/2004 8:57	J10d-SB-5-072704		4	5	PEAT	244.8	243.8	8.69
DMCJ10d	7/27/2004 8:58	J10d-SB-6-072704		5	6	PEAT	243.8	242.8	13.2
DMCJ10d	7/27/2004 9:06	J10d-SB-7-072704	Sample Archived @CAS	6	7	PEAT	242.8	241.8	
DMCJ10d	7/27/2004 9:07	J10d-SB-8-072704	Sample Archived @CAS	7	8	PEAT	241.8	240.8	
DMCJ10d	7/27/2004 9:08	J10d-SB-9-072704	Sample Archived @CAS	8	9	PEAT	240.8	239.8	
DMCJ10d	7/27/2004 9:09	J10d-SB-10-072704	Sample Archived @CAS	9	10	PEAT	239.8	238.8	
DMCJ10d	7/27/2004 9:17	J10d-SB-11-072704	Sample Archived @CAS	10	11	PEAT	238.8	237.8	
DMCJ10d	7/27/2004 9:18	J10d-SB-12-072704	Sample Archived @CAS	11	12	PEAT	237.8	236.8	
DMCJ10d	7/27/2004 9:19	J10d-SB-13-072704	Sample Archived @CAS	12	13	PEAT	236.8	235.8	
DMCJ10d	7/27/2004 9:20	J10d-SB-14-072704		13	14	PEAT and SILT	235.8	234.8	16.4
DMCJ10d	7/27/2004 9:28	J10d-SB-15-072704		14	15	SILT and silty SAND	234.8	233.8	5.66
DMCJ10d	7/27/2004 9:29	J10d-SB-16-072704	Sample Archived @CAS	15	16	silty SAND	233.8	232.8	
DMCJ10e	7/27/2004 11:45	J10e-SB-1-072704		0	1	silty SAND and PEAT	248.7	247.7	24.9
DMCJ10e	7/27/2004 11:46	J10e-SB-2-072704		1	2	PEAT	247.7	246.7	12.9
DMCJ10e	7/27/2004 11:49	J10e-SB-3-072704		2	3	PEAT	246.7	245.7	37.9
DMCJ10e	7/27/2004 11:50	J10e-SB-4-072704	Sample Archived @CAS	3	4	PEAT	245.7	244.7	
DMCJ10e	7/27/2004 11:51	J10e-SB-5-072704	Sample Archived @CAS	4	5	PEAT	244.7	243.7	
DMCJ10e	7/27/2004 11:52	J10e-SB-6-072704	Sample Archived @CAS	5	6	PEAT	243.7	242.7	
DMCJ10e	7/27/2004 11:58	J10e-SB-7-072704	Sample Archived @CAS	6	7	PEAT	242.7	241.7	
DMCJ10e	7/27/2004 11:59	J10e-SB-8-072704	Sample Archived @CAS	7	8	PEAT	241.7	240.7	
DMCJ10e	7/27/2004 12:00	J10e-SB-9-072704	Sample Archived @CAS	8	9	PEAT	240.7	239.7	
DMCJ10e	7/27/2004 12:01	J10e-SB-10-072704		9	10	PEAT	239.7	238.7	66.8
DMCJ10e	7/27/2004 12:07	J10e-SB-11-072704		10	11	SILT	238.7	237.7	14.3
DMCJ10e	7/27/2004 12:08	J10e-SB-12-072704	Sample Archived @CAS	11	12	SILT	237.7	236.7	
DMCJ10e	7/27/2004 12:09	J10e-SB-13-072704	Sample Archived @CAS	12	13	SILT	236.7	235.7	
DMCJ10e	7/27/2004 12:10	J10e-SB-14-072704	Sample Archived @CAS	13	14	SILT	235.7	234.7	
DMCJ10e	7/27/2004 12:12	J10e-SB-15-072704	Sample Archived @CAS	14	15	SILT	234.7	233.7	
DMCJ10f	7/27/2004 10:48	J10f-SB-1-072704		0	1	silty SAND and PEAT	248.6	247.6	33.9
DMCJ10f	7/27/2004 10:49	J10f-SB-2-072704		1	2	silty SAND and PEAT	247.6	246.6	78
DMCJ10f	7/27/2004 11:06	J10f-SB-3-072704		2	3	PEAT	246.6	245.6	163
DMCJ10f	7/27/2004 11:07	J10f-SB-4-072704	Sample Archived @CAS	3	4	PEAT	245.6	244.6	
DMCJ10f	7/27/2004 11:08	J10f-SB-5-072704	extra analyses submitted on 09/02/04 on new COC	4	5	PEAT	244.6	243.6	446
DMCJ10f	7/27/2004 11:09	J10f-SB-6-072704	Sample Archived @CAS	5	6	PEAT	243.6	242.6	
DMCJ10f	7/27/2004 11:19	J10f-SB-7-072704		6	7	PEAT	242.6	241.6	386

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Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCJ10f	7/27/2004 11:20	J10f-SB-8-072704	Sample Archived @CAS	7	8	PEAT	241.6	240.6	
DMCJ10f	7/27/2004 11:21	J10f-SB-9-072704		8	9	PEAT	240.6	239.6	63.3
DMCJ10f	7/27/2004 11:22	J10f-SB-10-072704		9	10	PEAT and SILT	239.6	238.6	27.2
DMCJ10f	7/27/2004 11:29	J10f-SB-11-072704		10	11	SILT	238.6	237.6	13.6
DMCJ10f	7/27/2004 11:30	J10f-SB-12-072704	Sample Archived @CAS	11	12	SILT	237.6	236.6	
DMCJ10f	7/27/2004 11:31	J10f-SB-13-072704	Sample Archived @CAS	12	13	SILT and SAND	236.6	235.6	
DMCJ10f	7/27/2004 11:32	J10f-SB-14-072704	Sample Archived @CAS	13	14	SAND	235.6	234.6	
DMCJ10f		J10f-SB-15-072704		14	15		234.6	233.6	
DMCJ11	4/19/2004 12:54	J11-SB-1 041904		0	1	SOD	248.3	247.3	7.7
DMCJ11	4/19/2004 12:57	J11-SB-2 041904		1	2	SOD	247.3	246.3	5.1
DMCJ11	4/19/2004 12:58	J11-SB-3 041904		2	3	SOD and SILT and PEAT	246.3	245.3	20.4
DMCJ11		J11-SB-4 041904	too wet-no recovery	3	4		245.3	244.3	
DMCJ11		J11-SB-5 041904	too wet-no recovery	4	5		244.3	243.3	
DMCJ11a	7/26/2004 12:55	J11a-SB-4-072604		3	4	PEAT	245.3	244.3	8.8
DMCJ11a	7/26/2004 13:00	J11a-SB-5-072604		4	5	PEAT	244.3	243.3	6.1
DMCK04	4/21/2004 13:08	K4-SB-1-042104		0	1	SOD and silty SAND	253.1	252.1	37.7
DMCK04	4/21/2004 13:12	K4-SB-2-042104		1	2	silty SAND and TOPSOIL	252.1	251.1	71.3
DMCK04	4/21/2004 13:16	K4-SB-3-042104	TCLP	2	3	TOPSOIL and silty SAND	251.1	250.1	169
DMCK04	4/21/2004 13:18	K4-SB-4-042104		3	4	silty SAND and SILT and SAND	250.1	249.1	5.5
DMCK04	4/21/2004 13:22	K4-SB-5-042104		4	5	SAND	249.1	248.1	10.6
DMCK04		K4-SB-6-042104	rock refusal - no recovery	5	6		248.1	247.1	
DMCK04		K4-SB-7-042104	rock refusal - no recovery	6	7		247.1	246.1	
DMCK04		K4-SB-8-042104	rock refusal - no recovery	7	8		246.1	245.1	
DMCK04		K4-SB-9-042104	rock refusal - no recovery	8	9		245.1	244.1	
DMCK05	4/28/2004 8:40	K5-SB-1-042804	Completed with drill rig	0	1	PEAT	253.4	252.4	23.8
DMCK05	4/28/2004 8:41	K5-SB-2-042804	Completed with drill rig	1	2	PEAT	252.4	251.4	21.6
DMCK05	4/28/2004 8:45	K5-SB-3-042804	Completed with drill rig	2	3	PEAT	251.4	250.4	196
DMCK05	4/28/2004 8:46	K5-SB-4-042804	Completed with drill rig	3	4	PEAT	250.4	249.4	82.1
DMCK05	4/28/2004 8:47	K5-SB-5-042804	Completed with drill rig; TCLP	4	5	PEAT	249.4	248.4	269
DMCK05	4/28/2004 8:48	K5-SB-6-042804	Completed with drill rig	5	6	PEAT	248.4	247.4	178
DMCK05	4/28/2004 8:50	K5-SB-7-042804	Completed with drill rig; TCLP	6	7	PEAT	247.4	246.4	130
DMCK05	4/28/2004 8:51	K5-SB-8-042804	Completed with drill rig	7	8	PEAT and silty SAND	246.4	245.4	22.1
DMCK05	4/28/2004 8:52	K5-SB-9-042804	Completed with drill rig	8	9	silty SAND and SILT	245.4	244.4	8.1
DMCK05	4/28/2004 8:53	K5-SB-10-042804	Completed with drill rig	9	10	SILT	244.4	243.4	5.4
DMCK06	4/20/2004 14:48	K6-SB-1-042004		0	1	SOD	251.4	250.4	22.7
DMCK06	4/20/2004 14:50	K6-SB-2-042004		1	2	SILT and organic SILT	250.4	249.4	62.3
DMCK06	4/20/2004 14:55	K6-SB-3-042004		2	3	PEAT	249.4	248.4	48.5
DMCK06	4/20/2004 14:57	K6-SB-4-042004		3	4	PEAT	248.4	247.4	70.4
DMCK06	4/20/2004 15:00	042004Dup 6		4	5	PEAT	247.4	246.4	60.9
DMCK06	4/20/2004 15:00	K6-SB-5-042004		4	5	PEAT	247.4	246.4	67.8
DMCK06	4/20/2004 15:03	K6-SB-6-042004		5	6	PEAT	246.4	245.4	71.5
DMCK06	4/20/2004 15:11	K6-SB-7-042004		6	7	PEAT	245.4	244.4	8.8
DMCK06	4/20/2004 15:13	K6-SB-8-042004		7	8	SILT and SAND	244.4	243.4	9.3
DMCK07	4/20/2004 14:16	K7-SB-1-042004		0	1	SOD and SILT	250	249	15.8
DMCK07	4/20/2004 14:18	K7-SB-2-042004		1	2	SILT and organic SILT and PEAT	249	248	4.4
DMCK07	4/20/2004 14:20	K7-SB-3-042004		2	3	PEAT	248	247	4.8

Notes: 1) Result values in italic type are PREVALIDATED data.

Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCK07	4/20/2004 14:24	K7-SB-4-042004		3	4	PEAT	247	246	51.2
DMCK07	4/20/2004 14:26	K7-SB-5-042004		4	5	PEAT	246	245	79
DMCK07		K7-SB-6-042004	too wet-no recovery	5	6		245	244	
DMCK07a	7/27/2004 13:55	K7a-SB-6-072704	extra analyses submitted on 09/02/04 on new COC	5	6	PEAT	245.2	244.2	54
DMCK07a	7/27/2004 14:01	K7a-SB-7-072704	extra analyses submitted on 09/02/04 on new COC	6	7	PEAT	244.2	243.2	166
DMCK07a	7/27/2004 14:02	K7a-SB-8-072704	extra analyses submitted on 09/02/04 on new COC	7	8	PEAT	243.2	242.2	96.5
DMCK07a	7/27/2004 14:03	K7a-SB-9-072704		8	9	SILT and SAND	242.2	241.2	6.25
DMCK07a	7/27/2004 14:04	K7a-SB-10-072704	Sample Archived @CAS	9	10	SAND	241.2	240.2	
DMCK08	4/20/2004 9:41	K8-SB-1-042004		0	1	SOD and organic SILT	249.6	248.6	13.7
DMCK08	4/20/2004 9:44	K8-SB-2-042004		1	2	organic SILT and PEAT	248.6	247.6	11.4
DMCK08	4/20/2004 9:49	K8-SB-3-042004		2	3	PEAT	247.6	246.6	33.3
DMCK08	4/20/2004 9:50	K8-SB-4-042004		3	4	PEAT	246.6	245.6	12.1
DMCK08	4/20/2004 9:56	K8-SB-5-042004		4	5	PEAT	245.6	244.6	18.2
DMCK08		K8-SB-6-042004	too wet-no recovery	5	6		244.6	243.6	
DMCK08a	7/27/2004 12:46	K8a-SB-6-072704		5	6	PEAT	244.6	243.6	18.7
DMCK08a	7/27/2004 12:47	K8a-SB-7-072704		6	7	PEAT	243.6	242.6	17.6
DMCK08a	7/27/2004 12:48	K8a-SB-8-072704		7	8	PEAT	242.6	241.6	14.9
DMCK08a	7/27/2004 12:49	K8a-SB-9-072704	Sample Archived @CAS	8	9	PEAT	241.6	240.6	
DMCK08a	7/27/2004 12:50	K8a-SB-10-072704	Sample Archived @CAS	9	10	PEAT	240.6	239.6	
DMCK08a	7/27/2004 12:55	K8a-SB-11-072704	Sample Archived @CAS	10	11	PEAT	239.6	238.6	
DMCK08a	7/27/2004 12:56	K8a-SB-12-072704	Sample Archived @CAS	11	12	PEAT	238.6	237.6	
DMCK08a	7/27/2004 12:57	K8a-SB-13-072704	Sample Archived @CAS	12	13	PEAT	237.6	236.6	
DMCK08a	7/27/2004 12:58	K8a-SB-14-072704		13	14	PEAT	236.6	235.6	53.8
DMCK08a	7/27/2004 13:02	K8a-SB-15-072704		14	15	SILT	235.6	234.6	6.18
DMCK08a	7/27/2004 13:03	K8a-SB-16-072704	Sample Archived @CAS	15	16	SILT	234.6	233.6	
DMCGW1D	4/26/2004 12:10	GW-1D-SB-6-042604	Sample Archived @CAS Completed w/Hand Auger	5	6	PEAT	243.21	242.21	14.7
DMCGW1D	4/26/2004 12:20	GW-1D-SB-7-042604	Sample Archived @CAS Completed w/Hand Auger	6	7	PEAT	242.21	241.21	14.1
DMCGW1D	4/26/2004 12:30	GW-1D-SB-8-042604	Sample Archived @CAS Completed w/Hand Auger	7	8	PEAT	241.21	240.21	15
DMCGW1D	4/26/2004 12:40	GW-1D-SB-9-042604	Sample Archived @CAS Completed w/Hand Auger	8	9	PEAT and SILT	240.21	239.21	12.5
DMCGW1D	4/26/2004 12:50	GW-1D-SB-10-042604	Sample Archived @CAS Completed w/Hand Auger	9	10	SILT	239.21	238.21	7.56
DMCGW1D	4/26/2004 13:10	GW-1D-SB-11.5-042604	Sample Archived @CAS Completed w/Hand Auger	10	11	SAND with SILT to SAND	238.21	237.21	1.09
DMCGW1D	4/26/2004 13:00	GW-1D-SB-11-042604	Sample Archived @CAS Completed w/Hand Auger	11	11.5	SAND	237.21	236.71	7.85
DMCGW1S	4/26/2004 9:40	GW-1S-SB-2-042604	Sample Archived @CAS	0	2	PEAT	248.37	246.37	15.2
DMCGW1S	4/26/2004 9:41	GW-1S-SB-4-042604	Sample Archived @CAS	2	4	PEAT	246.37	244.37	11.6
DMCGW1S	4/26/2004 10:30	GW-1S-SB-5-042604	Sample Archived @CAS	4	5	PEAT	244.37	243.37	11.4
DMCGW2D	4/22/2004 8:40	GW-2D-SB-2-042204	Sample Archived @CAS	1	2	PEAT	249.58	248.58	11.1

Notes: 1) Result values in italic type are PREVALIDATED data.

Attachment 1
Summary of Arsenic Concentrations in Soil

Des Moines Creek Regional Detention Facility

Boring Location	Sample Date / Time	Sample ID	Comment	Start Depth	End Depth	Soil Type	Start Elev	End Elev	Arsenic (Total) SW6020 mg/kg
DMCGW2D	4/22/2004 8:51	GW-2D-SB-4-042204	Sample Archived @CAS	2	4	PEAT	248.58	246.58	82.4
DMCGW2D	4/22/2004 8:52	GW-2D-SB-6-042204	Sample Archived @CAS	4	6	PEAT	246.58	244.58	79.8
DMCGW2D	4/22/2004 9:09	GW-2D-SB-7-042204	Sample Archived @CAS	6	7	SILT	244.58	243.58	19.2
DMCGW2D	4/22/2004 9:10	GW-2D-SB-8.5-042204	Sample Archived @CAS	7	8.5	SAND	243.58	242.08	5.4
DMCGW2D	4/22/2004 9:11	GW-2D-SB-10-042204	Sample Archived @CAS	8.5	10	SAND	242.08	240.58	2.55
DMCGW3D	4/21/2004 11:42	GW-3D-SB-2-042104	Sample Archived @CAS	1	2	PEAT	248.34	247.34	4.13
DMCGW3D	4/21/2004 11:48	GW-3D-SB-4-042104	Sample Archived @CAS	2	4	PEAT	247.34	245.34	12
DMCGW3D	4/21/2004 11:49	GW-3D-SB-6-042104	Sample Archived @CAS	4	6	PEAT	245.34	243.34	18.6
DMCGW3D	4/21/2004 11:59	GW-3D-SB-7-042104	Sample Archived @CAS	6	7	PEAT	243.34	242.34	7.93
DMCGW3D	4/21/2004 12:00	GW-3D-SB-8.5-042104	Sample Archived @CAS	7	8.5	PEAT	242.34	240.84	4.23
DMCGW3D	4/21/2004 12:01	GW-3D-SB-10-042104	Sample Archived @CAS	8.5	10	PEAT	240.84	239.34	3.89
DMCGW3D	4/21/2004 12:09	GW-3D-SB-11.75-042104	Sample Archived @CAS	10	11.75	PEAT	239.34	237.59	5.2
DMCGW3D	4/21/2004 12:10	GW-3D-SB-13.5-042104	Sample Archived @CAS	11.75	13.5	PEAT	237.59	235.84	3.88
DMCGW4D	4/21/2004 8:22	GW-4D-SB-3-042104	Sample Archived @CAS	1	3	silty SAND	248.91	246.91	2.07
DMCGW4D	4/21/2004 8:23	GW-4D-SB-5-042104	Sample Archived @CAS	3	5	silty SAND and PEAT	246.91	244.91	3.77
DMCGW4D	4/21/2004 9:31	GW-4D-SB-14-042104	Sample Archived @CAS	12	14	silty SAND	237.91	235.91	2.8
DMCGW5D	4/22/2004 13:37	GW-5D-SB-2-042204	Sample Archived @CAS	1	2	PEAT	246.9	245.9	11.8
DMCGW5D	4/22/2004 13:41	GW-5D-SB-3.5-042204	Sample Archived @CAS	2	3.5	PEAT	245.9	244.4	45.6
DMCGW5D	4/22/2004 13:42	GW-5D-SB-5-042204	Sample Archived @CAS	3.5	5	PEAT	244.4	242.9	10.8
DMCGW5D	4/22/2004 13:43	GW-5D-SB-6-042204	Sample Archived @CAS	5	6	PEAT	242.9	241.9	22.1
DMCGW5D	4/22/2004 14:01	GW-5D-SB-8-042204	Sample Archived @CAS	6	8	PEAT	241.9	239.9	28.1
DMCGW5D	4/22/2004 14:02	GW-5D-SB-10-042204	Sample Archived @CAS	8	10	PEAT	239.9	237.9	61.7
DMCGW5D	4/22/2004 14:25	GW-5D-SB-12-042204	Sample Archived @CAS	10	12	PEAT	237.9	235.9	158
DMCGW5D	4/22/2004 14:26	GW-5D-SB-14-042204	Sample Archived @CAS	12	14	PEAT and silty SAND	235.9	233.9	27.7

Notes: 1. Result values in italic type are PREVALIDATED data.

Table 1 - Summary of Estimated Soil Volumes - 20 ppm Arsenic Screening Level
(Volume in cubic yards, area in acres)

	Scenario 1 - Excavation to Design Elevation	Scenario 2 - Overexcavation of Soil Above Screening Level to One Foot Below Design Elevation	Scenario 3 - Overexcavation to Two Feet Below Design Elevation	Scenario 4 - Overexcavation to Three Feet Below Design Elevation
VOLUME ESTIMATES (BASED ON 20 PPM ARSENIC SCREENING LEVEL)				
Volume of Soil Stockpiled from Phase I ¹	10,600	10,600	10,600	10,600
Peat/Organic Silt above Screening Level	2,600	2,600	2,600	2,600
Soil below Screening Level	8,000	8,000	8,000	8,000
Volume of Soil to be Excavated in Phase II	44,100	48,800	52,500	55,400
Soil above Screening Level	17,380	22,080	25,780	28,680
Peat/Organic Silt below Screening Level	9,800	9,800	9,800	9,800
Other Soils below Screening Level	16,920	16,920	16,920	16,920
Area at Base of Excavation with Soil Above Screening Level	2.9	2.5	1.9	1.3
Volume Available for Clean Soil Cap	34,720	34,720	34,720	34,720
Peat/Organic Silt	9,800	9,800	9,800	9,800
Other Clean Fill Soils	24,920	24,920	24,920	24,920
Volume of Clean Soil Cap	0	4,700	8,400	11,300
Volume of Stockpiled Soil after Phase II	54,700	54,700	54,700	54,700
Soil above Screening Level	19,980	24,680	28,380	31,280
Soil below Screening Level	34,720	30,020	26,320	23,420
PRELIMINARY COST ESTIMATES (TO BE REFINED AFTER TREATABILITY TESTING AND DESIGN)				
Total Incremental Remediation Costs ²	\$1,220,000	\$1,710,000	\$1,980,000	\$2,190,000
Trucking and Disposal @ \$35/ton	\$839,160	\$1,036,560	\$1,191,960	\$1,313,760
Stockpile Sampling @\$300/1,000 cy	\$16,410	\$16,410	\$16,410	\$16,410
Overexcavation @ \$6/cy	\$0	\$28,200	\$50,400	\$67,800
Mixing and Placing Cap @\$8/cy	\$0	\$37,600	\$67,200	\$90,400
Iron Amendment - \$400/ton	\$0	\$80,000	\$60,800	\$41,600
Consulting (Design, Oversight, Reporting) @ 10%	\$85,557	\$119,877	\$138,677	\$152,997
Contingency @ 30%	\$282,338	\$395,594	\$457,634	\$504,890
Additional Remediation Costs Compared to Scenario 1	\$0	\$490,000	\$760,000	\$970,000

Notes:

Screening Level = 20 mg/kg Arsenic

Volume Reported in Cubic Yards

Area Reported in Acres

Volume of soil above screening level was increased by 10% to account for uncertainties in field delineation of affected soil.

Volumes and areas for overexcavation were determined on a grid of 80x80 ft cells, approximately centered on borehole grid locations, to account for uncertainties in field delineation of affected soil

¹ Estimated volume from Phase I based on following assumptions:

Stockpile A consists of peat/organic silt above screening level

Stockpiles B and C consist of soil below screening level

3,300 cubic yards of Stockpiles B and C existing on 9/28/04 will be reused in Phase I Activities

² Incremental Remediation Costs are order-of-magnitude estimates for environmental costs above and beyond normal construction costs, based on the following assumptions:

Average density of soil exceeding screening level = 1.2 tons/cubic yard

Density of iron amendment = 2.1 tons/cubic yard

Organic silt and peat will be accepted for landfill disposal at standard soil disposal rates

Additional material handling (e.g., stockpile controls) for soil exceeding screening levels will not be necessary

Confirmational monitoring, including verification samples (if necessary) and surface or groundwater monitoring, is not included.

Additional dewatering costs for overexcavation scenarios, if necessary, are not included.

Iron amendment assumes 80 tons of granular iron per acre. Actual volume and form of amendment, if necessary, to be determined after further testing.

Table 2 - Summary of Estimated Soil Volumes - 40 ppm Arsenic Screening Level
(Volume in cubic yards, area in acres)

	Scenario 1 - Excavation to Design Elevation	Scenario 2 - Overexcavation of Soil Above Screening Level to One Foot Below Design Elevation	Scenario 3 - Overexcavation of Soil Above Screening Level to Two Feet Below Design Elevation	Scenario 4 - Overexcavation of Soil Above Screening Level to Three Feet Below Design Elevation
VOLUME ESTIMATES (BASED ON 40 PPM ARSENIC SCREENING LEVEL)				
Volume of Soil Stockpiled from Phase I ¹	10,600	10,600	10,600	10,600
Peat/Organic Silt above Screening Level	2,600	2,600	2,600	2,600
Soil below Screening Level	8,000	8,000	8,000	8,000
Volume of Soil to be Excavated in Phase II	44,100	46,300	48,300	49,400
Soil above Screening Level	8,030	10,230	12,230	13,330
Peat/Organic Silt below Screening Level	17,400	17,400	17,400	17,400
Other Soils below Screening Level	18,670	18,670	18,670	18,670
Area at Base of Excavation with Soil Above Screening Level	1.4	0.89	0.66	0.44
Volume Available for Clean Soil Cap	44,070	44,070	44,070	44,070
Peat/Organic Silt	17,400	17,400	17,400	17,400
Other Clean Fill Soils	26,670	26,670	26,670	26,670
Volume of Clean Soil Cap	0	2,200	4,200	5,300
Volume of Stockpiled Soil after Phase II	54,700	54,700	54,700	54,700
Soil above Screening Level	10,630	12,830	14,830	15,930
Soil below Screening Level	44,070	41,870	39,870	38,770
PRELIMINARY COST ESTIMATES (TO BE REFINED AFTER TREATABILITY TESTING AND DESIGN)				
Total Incremental Remediation Costs ²	\$660,000	\$880,000	\$1,030,000	\$1,110,000
Trucking and Disposal @ \$35/ton	\$446,460	\$538,860	\$622,860	\$669,060
Stockpile Sampling @\$300/1,000 cy	\$16,410	\$16,410	\$16,410	\$16,410
Overexcavation @ \$6/cy	\$0	\$13,200	\$25,200	\$31,800
Mixing and Placing Cap @\$8/cy	\$0	\$17,600	\$33,600	\$42,400
Iron Amendment - \$400/ton	\$0	\$28,480	\$21,120	\$14,080
Consulting (Design, Oversight, Reporting) @ 10%	\$46,287	\$61,455	\$71,919	\$77,375
Contingency @ 30%	\$152,747	\$202,802	\$237,333	\$255,338
Additional Remediation Costs Compared to Scenario 1	\$0	\$220,000	\$370,000	\$450,000

Notes:

Screening Level = 40 mg/kg Arsenic

Volume Reported in Cubic Yards

Area Reported in Acres

Volume of soil above screening level increased by 10% to account for uncertainties in field delineation of affected soil.

Volumes and areas for overexcavation were determined on a grid of 80x80 ft cells, approximately centered on borehole grid locations, to account for uncertainties in field delineation of affected soil

¹ Estimated volume from Phase I based on following assumptions:

Stockpile A consists of peat/organic silt above screening level

Stockpiles B and C consist of soil below screening level

3,300 cubic yards of Stockpiles B and C existing on 9/28/04 will be reused in Phase I Activities

² Incremental Remediation Costs are order-of-magnitude estimates for environmental costs above and beyond normal construction costs, based on the following assumptions:

Average density of soil exceeding screening level = 1.2 tons/cubic yard

Density of iron amendment = 2.1 tons/cubic yard

Organic silt and peat will be accepted for landfill disposal at standard soil disposal rates

Additional material handling (e.g., stockpile controls) for soil exceeding screening levels will not be necessary

Confirmational monitoring, including verification samples (if necessary) and surface or groundwater monitoring, is not included.

Additional dewatering costs for overexcavation scenarios, if necessary, are not included.

Iron amendment assumes 80 tons of granular iron per acre. Actual volume and form of amendment, if necessary, to be determined after further testing.

Table 3 - Summary of Estimated Soil Volumes - 87.5 ppm Arsenic Screening Level
(Volume in cubic yards, area in acres)

	Scenario 1 - Excavation to Design Elevation	Scenario 2 - Overexcavation of Soil Above Screening Level to One Foot Below Design Elevation	Scenario 3 - Overexcavation of Soil Above Screening Level to Two Feet Below Design Elevation	Scenario 4 - Overexcavation of Soil Above Screening Level to Three Feet Below Design Elevation
VOLUME ESTIMATES				
Volume of Soil Stockpiled from Phase I ¹	10,600	10,600	10,600	10,600
Peat/Organic Silt above Screening Level	2,600	2,600	2,600	2,600
Soil below Screening Level	8,000	8,000	8,000	8,000
Volume of Soil to be Excavated in Phase II	44,100	46,000	47,000	47,300
Soil above Screening Level	2,880	4,780	5,780	6,080
Peat/Organic Silt below Screening Level	22,100	22,100	22,100	22,100
Other Soils below Screening Level	19,120	19,120	19,120	19,120
Area at Base of Excavation with Soil Above Screening Level	1.20	0.60	0.22	0.07
Volume Available for Clean Soil Cap	49,220	49,220	49,220	49,220
Peat/Organic Silt	22,100	22,100	22,100	22,100
Other Clean Fill Soils	27,120	27,120	27,120	27,120
Volume of Clean Soil Cap	0	1,900	2,900	3,200
Volume of Stockpiled Soil after Phase II	54,700	54,700	54,700	54,700
Soil above Screening Level	5,480	7,380	8,380	8,680
Soil below Screening Level	49,220	47,320	46,320	46,020
PRELIMINARY COST ESTIMATES (TO BE REFINED AFTER TREATABILITY TESTING AND DESIGN)				
Total Incremental Remediation Costs ²	\$350,000	\$530,000	\$590,000	\$610,000
Trucking and Disposal @ \$35/ton	\$230,160	\$309,960	\$351,960	\$364,560
Stockpile Sampling @\$300/1,000 cy	\$16,410	\$16,410	\$16,410	\$16,410
Overexcavation @ \$6/cy	\$0	\$11,400	\$17,400	\$19,200
Mixing and Placing Cap @\$8/cy	\$0	\$15,200	\$23,200	\$25,600
Iron Amendment - \$400/ton	\$0	\$19,200	\$7,040	\$2,240
Consulting (Design, Oversight, Reporting) @ 10%	\$24,657	\$37,217	\$41,601	\$42,801
Contingency @ 30%	\$81,368	\$122,816	\$137,283	\$141,243
Additional Remediation Costs Compared to Scenario 1	\$0	\$180,000	\$240,000	\$260,000

Notes:

Screening Level = 87.5 mg/kg Arsenic

Volume Reported in Cubic Yards

Area Reported in Acres

Phase II soil volume above screening level for scenario 1 was increased by a factor of 2 to account for uncertainties in field delineation of affected soil

Volumes and areas for overexcavation were determined on a grid of 80x80 ft cells, approximately centered on borehole grid locations, to account for uncertainties in field delineation of affected soil

¹ Estimated volume from Phase I based on following assumptions:

Stockpile A consists of peat/organic silt above screening level

Stockpiles B and C consist of soil below screening level

3,300 cubic yards of Stockpiles B and C existing on 9/28/04 will be reused in Phase I Activities

² Incremental Remediation Costs are order-of-magnitude estimates for environmental costs above and beyond normal construction costs, based on the following assumptions:

Average density of soil exceeding screening level = 1.2 tons/cubic yard

Density of iron amendment = 2.1 tons/cubic yard

Organic silt and peat will be accepted for landfill disposal at standard soil disposal rates

Additional material handling (e.g., stockpile controls) for soil exceeding screening levels will not be necessary

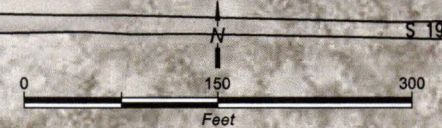
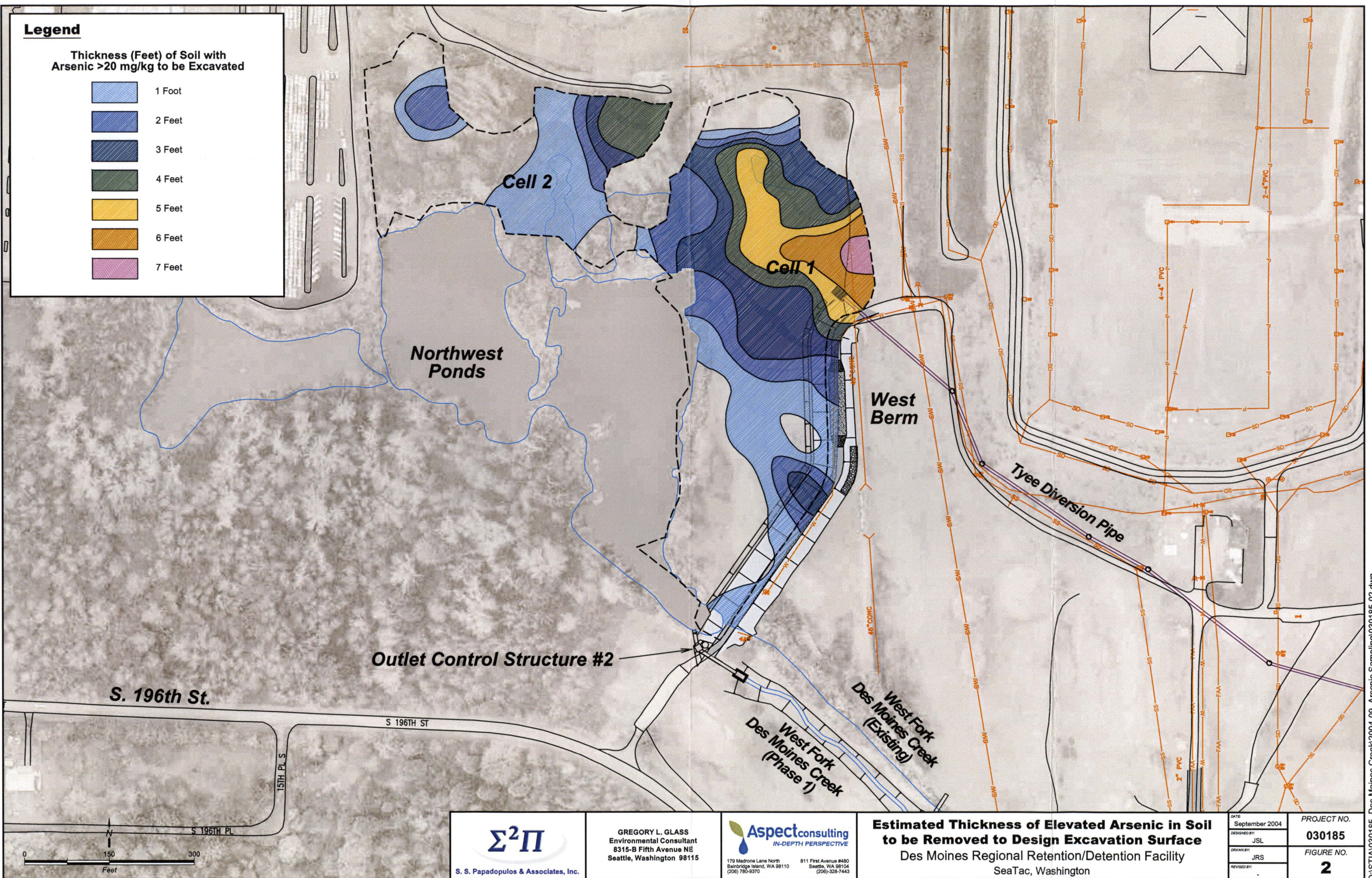
Confirmational monitoring, including verification samples (if necessary) and surface or groundwater monitoring, is not included.

Additional dewatering costs for overexcavation scenarios, if necessary, are not included.

Iron amendment assumes 80 tons of granular iron per acre. Actual volume and form of amendment, if necessary, to be determined after further testing.

Legend

Thickness (Feet) of Soil with Arsenic >20 mg/kg to be Excavated



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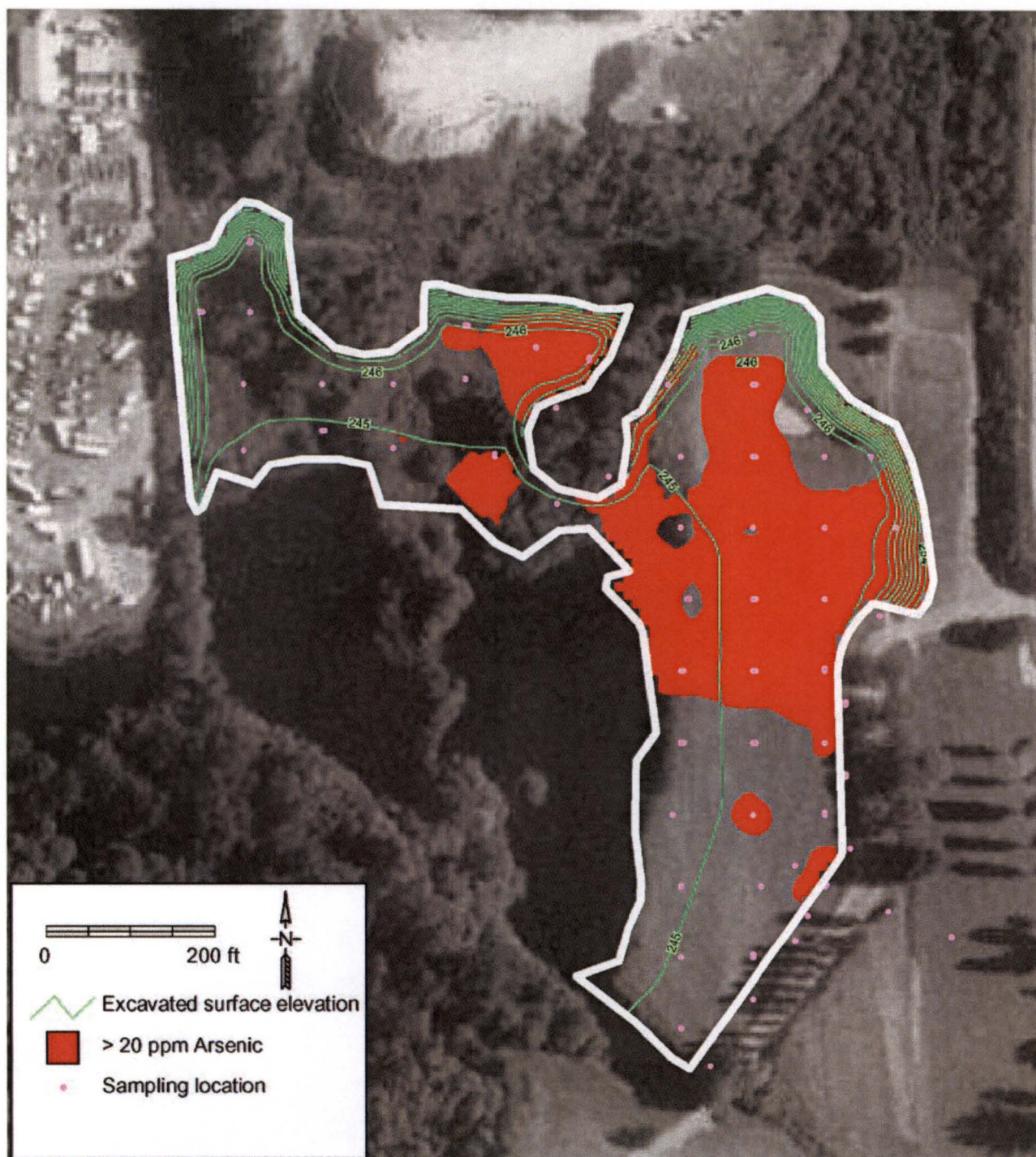
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**Estimated Thickness of Elevated Arsenic in Soil
to be Removed to Design Excavation Surface**
Des Moines Regional Retention/Detention Facility
SeaTac, Washington

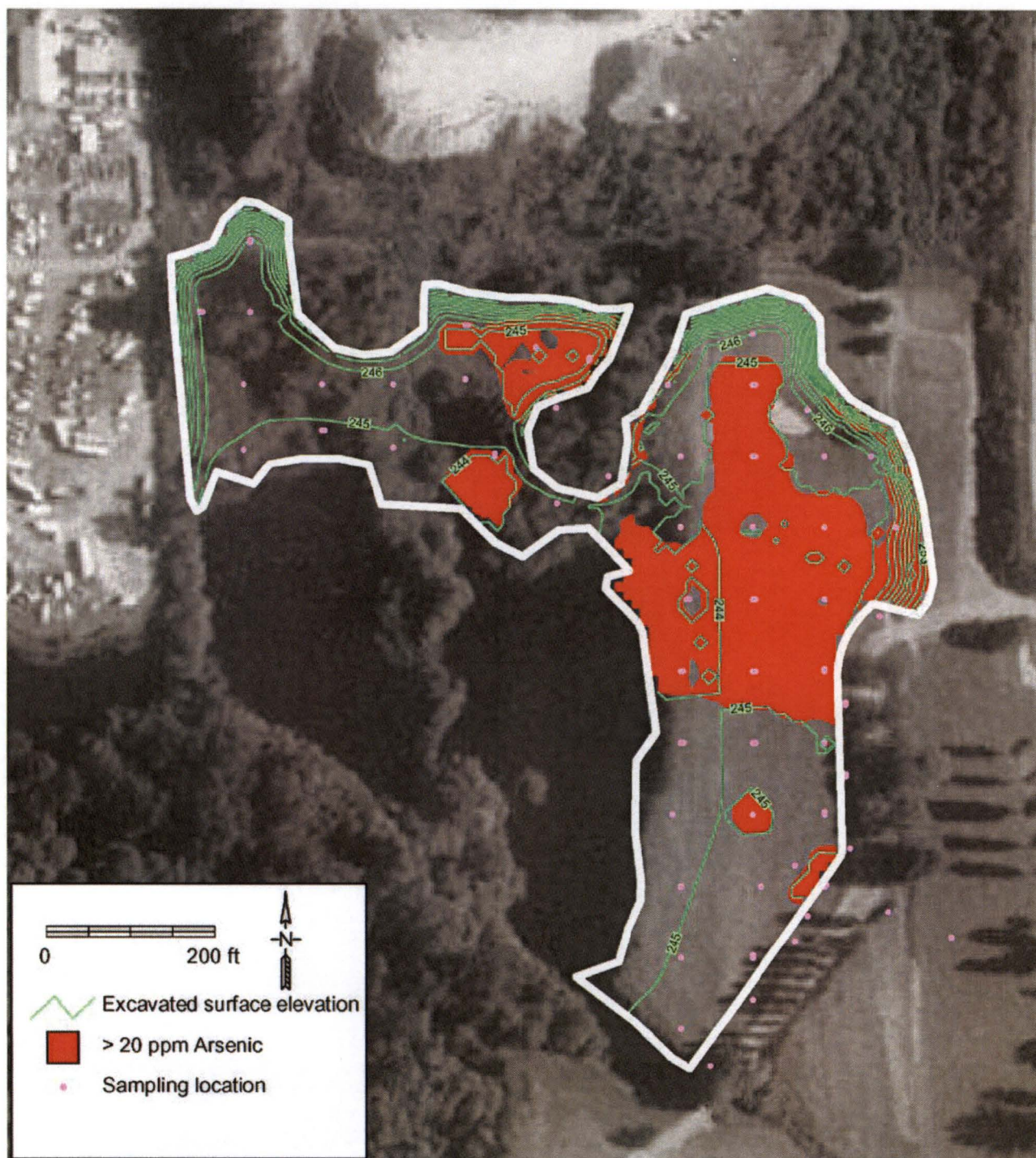
DATE: September 2004	PROJECT NO. 030185
DESIGNED BY: JSL	FIGURE NO. 2
DRAWN BY: JRS	
REVISED BY:	

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Areas where arsenic concentrations exceed 20 ppm at bottom of excavation area

<div></div> <div>S. S. Papadopoulos & Associates, Inc.</div>	<div>GREGORY L. GLASS Environmental Consultant 8315-B Fifth Avenue NE Seattle, Washington 98115</div>				
<div><div>179 Madrone Lane North Bainbridge Island, WA 98110 (206) 780-9370</div><div>811 First Avenue #480 Seattle, WA 98104 (206)-328-7443</div></div>	<div><div>Areas Where Arsenic Concentrations Exceed 20 mg/kg at Bottom of Excavation Area (Scenario 1)</div><div>Des Moines Regional Retention/Detention Facility SeaTac Washington</div></div>			<div>DATE: October 2004</div> <div>DESIGNED BY: JJP</div> <div>DRAWN BY: JRS</div> <div>REVISED BY:</div>	<div>PROJECT NO. 030185</div> <div>FIGURE NO. 3</div>



Areas where arsenic concentrations exceed 20 ppm at bottom of excavation area
Over-excavated by 1 ft

$\Sigma^2\Pi$

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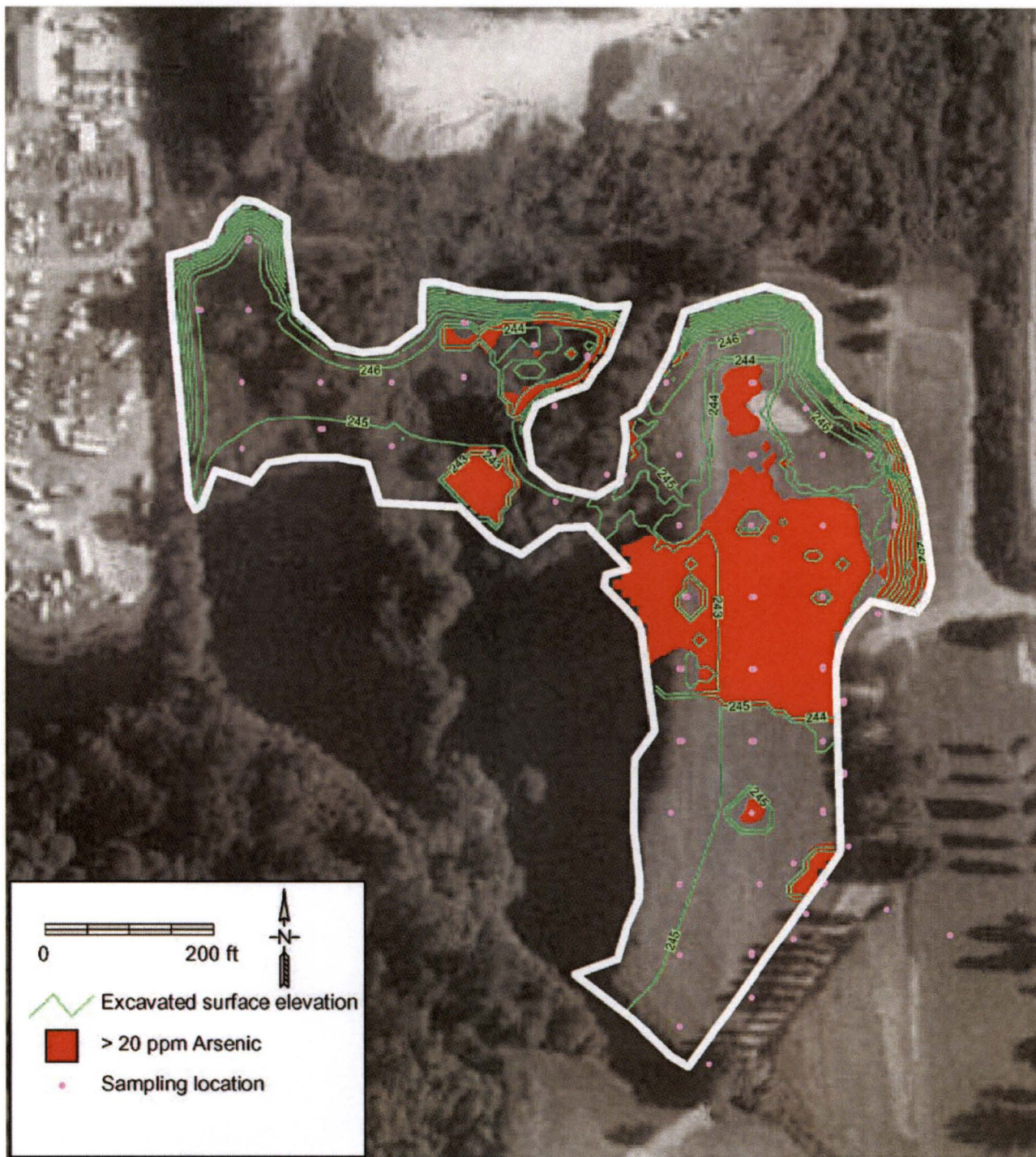
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**Areas Where Arsenic Concentrations Exceed 20 mg/kg at
Bottom of Excavation Area Overexcavated by One Foot (Scenario 2)**
Des Moines Regional Retention/Detention Facility
SeaTac Washington

DATE: October 2004
DESIGNED BY: JJP
DRAWN BY: JRS
REVISED BY:

PROJECT NO.
030185
FIGURE NO.
4



Areas where arsenic concentrations exceed 20 ppm at bottom of excavation area
Over-excavated by 2 ft

$\Sigma^2\Pi$

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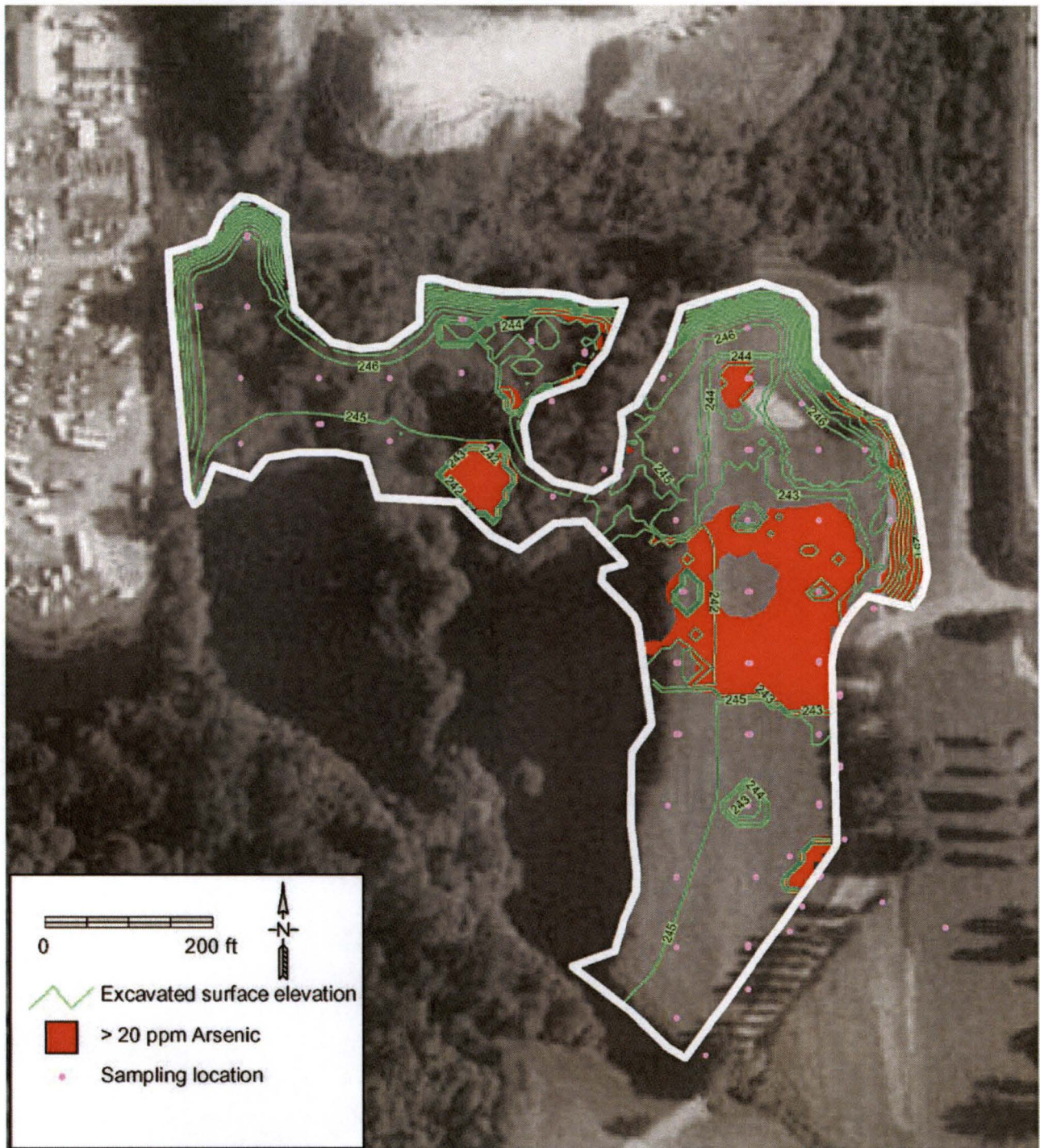
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**Areas Where Arsenic Concentrations Exceed 20 mg/kg at
Bottom of Excavation Area Overexcavated by Two Feet (Scenario 3)**
Des Moines Regional Retention/Detention Facility
SeaTac Washington

DATE:
October 2004
DESIGNED BY:
JJP
DRAWN BY:
JRS
REVISED BY:

PROJECT NO.
030185
FIGURE NO.
5



Areas where arsenic concentrations exceed 20 ppm at bottom of excavation area
Over-excavated by 3 ft

$\Sigma^2\Pi$

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**Areas Where Arsenic Concentrations Exceed 20 mg/kg at
Bottom of Excavation Area Overexcavated by Three Feet (Scenario 4)**
Des Moines Regional Retention/Detention Facility
SeaTac Washington

DATE: October 2004
DESIGNED BY: JJP
DRAWN BY: JRS
REVISED BY:

PROJECT NO.
030185
FIGURE NO.
6